BOSTON
MEDICAL LIBRARY
8 THE FENWAY

Digitized by the Internet Archive
in 2017 with funding from
The National Endowment for the Humanities and the Arcadia Fund

https://archive.org/details/medicalannalsofd4193medi

BOSTON MEDICAL
LIBRARY

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV JANUARY, 1935 NUMBER 1

THE MALARIA TREATMENT OF NEUROSYPHILIS*

WALTER FREEMAN, M.D., F.A.C.P.
Professor of Neurology, George Washington University School of Medicine

The malaria treatment of neurosyphilis is one of the great discoveries of modern medicine, and its originator was rightfully rewarded with the Nobel Prize. The studies that have followed the original investigation have broadened the field to a remarkable extent, so that in the present discussion only a few points can be emphasized. These are: (1) Besides dementia paralytica what other types of neurosyphilis are amenable to the malaria treatment? (2) Is the arrest secured by malaria apt to be permanent? (3) Can the treatment be administered without the necessity of prolonged hospitalization?

TYPES OF NEUROSYPHILIS AMENABLE TO TREATMENT

While the treatment was first devised to overcome the almost inevitably fatal syphilitic encephalitis that goes by the old-fashioned name of general paralysis of the insane, the spectacular results in this type of clinical manifestation have led to its trial in other allied affections. The results are varied. According to the studies of Moore in Baltimore and of O'Leary at the Mayo Clinic, the results of the malaria treatment are best in asymptomatic neurosyphilis, characterized by a persistently positive Wassermann reaction in the spinal fluid without other manifestations from the neurological or mental aspects. The results in that rather vague group "*paresis sine paresi*" are also excellent. Indeed, the administration of malaria in these cases is usually followed by an almost abrupt return of the spinal fluid findings to normal, and by no development of clinical manifestations.

The results in cases of tabes depend almost altogether upon the stage at which the treatment is applied. But little can be expected from "burnt-out" cases that present advanced physical signs combined with little or no alteration in the spinal fluid. On the other hand, in early cases where the fulgurant pains are a prominent feature of the symptomatology and where the ataxia has advanced to only a slight degree, a satisfactory result is usually obtained. There is a certain danger in giving malaria in cases of tabes that show vesical disturbances, since retention is likely to occur during the course of the malarial paroxysms. Catheterization is then necessary with its attendant risk of urinary infection. Patients with persistent lightning pains after the malaria are by no means uncommon, and they present one of the major problems that must be faced by the therapist.

The rarer forms of neurosyphilis, such as the amyotrophies, the Charcot joints, transverse myelitis, and the diffuse spinal degenerations, all seem to offer little promise of benefit from malaria.

Syphilitic affections of the cranial nerves show a variable response to malaria. I have observed a case of rather chronic oculomotor paralysis in which the ptosis began to disappear with the first paroxysm, and continued progressively to do so, until by the end of the course the palpebral fissures were practically equally wide. The normal movements of the eyeballs were restored within a short time. In cases of optic atrophy the results are variable. In about half of the cases a slowly progressive atrophy can be arrested.

---

* Read before the joint meeting of the Baltimore City Medical Society and the Medical Society of the District of Columbia, in Baltimore, November 16, 1934.

In a patient recently observed with Dr. Richard W. Wilkinson there was almost complete amaurosis during the paroxysms, while in the intervening periods the patient regained sufficient vision to be able to read newspapers without glasses, an act that had been impossible for several weeks before the treatment. Since his malaria there has been considerable fluctuation in visual acuity, but it will probably be stabilized at a lower level than formerly. Syphilitic nerve deafness holds little promise of improvement, particularly since in such cases treatment is often delayed until neural degeneration is complete. In one case of acute deafness, hearing was reëstablished very satisfactorily. Involvement of other cranial nerves is so uncommon in syphilis that not much information is available as to the effect of malaria.

Malaria has apparently no place in the treatment of the syphilitic vascular disorders with their attendant thrombosis and infarction. In any event, the damage is done, and malaria cannot bring back to life a necrotic area.

The value of malaria in cases of luetic basilar meningitis is debatable. In many of these cases the onset is rather fulminating, and much damage may be inflicted before the fever can take hold. Moreover, the use of arsenic and bismuth in these cases, accompanied by spinal drainage, is often followed by very satisfactory results. Dr. H. D. Shapiro and I observed a case, however, in which there was marked improvement in the symptoms, with subsidence of choked disc and satisfactory restoration of vision. This patient has remained well over a period of 4 years.

Another of the fields where malaria exerts only a slight effect is in the cases of juvenile tabes and paresis. While the progress of the disease may sometimes appear to be arrested there is apparently no restoration of function comparable with that which takes place in adult cases.

In general paralysis, to my way of thinking, malaria is the only satisfactory treatment. I do not deny that patients may be kept in good condition and that the serologic reactions may be kept normal by medication, particularly tryparsamide, but if the treatment should be interrupted for any reason, even after the administration of as much as 300 grams of tryparsamide, relapses are prone to occur. The relapses are then blamed upon inadequate treatment. That relapses occur after malaria treatment is also a recognized fact, and also, usually, because of inadequate treatment. However, between the two, it is much easier to keep the subject under control during the administration of malaria than it is during the prolonged period of administration of an arsenical drug. Even the most refractory patient will call for help after his fever has reached 104°F. a few times. Most, if not all of the series of cases treated with tryparsamide are vitiated by the exclusion of patients that received inadequate treatment. Many cases have had to be discarded because they did not return for treatment and were then lost sight of.

The results in dementia paralytica depend largely upon the period at which the patient receives the malaria treatment. This was shown quite graphically a year ago by Eldridge, Hall and myself upon the large material at St. Elizabeth's Hospital. Of those receiving treatment during the first year of the symptoms 59 per cent had been discharged and 7 per cent were dead, whereas, if a period of 3 years or more elapsed between the time of onset and the time of treatment, 9 per cent were discharged and 39 per cent were dead. These figures were yielded by a study of some 200 patients followed over a period of from 5 to 11 years after the malaria treatment. Another element in the success of the treatment was to be found in the number of paroxysms. Of those receiving less than 10 paroxysms only 2.3 per cent were employed at their previous level, while 53.4 per cent were dead. On the other hand, of those receiving 10 or more paroxysms 20 per cent were able to hold jobs equivalent to their former ones, and 23.2 per cent were dead. These 200 cases represented consecutive admissions to the hospital, and many had already advanced to a relatively hopeless stage before treatment was instituted.

In comparison I have chosen a much smaller number of cases (32) that have been treated by me outside of a mental hospital. Seven of these patients have died, 1 during the malaria and 6 for varying periods after malaria. Two of these worked every day at their former occupations until death overtook them, and another committed suicide. Nineteen of the living patients are adjusting at their previous level, 4 at a lower level, and 2 are in mental hospitals.

PERMANENCY OF ARREST

In the early days of application of the malaria treatment writers expressed themselves with commendable caution in regard to the permanency of the results. They were willing to speak of remission, seldom of arrest, never of cure. There is still a justifiable hesitancy on the part of many authors to use the shorter and sweeter word. Indeed, a number of papers have appeared tending to show that the remissions from the use of malaria are not lasting, and Buscaino questioned whether much was being accomplished for the patient or for society by prolonging for a few years the duration of life of these permanently crippled individuals. It was in answer to this particular paper that the 200 cases were studied as mentioned above. Using the same criteria, the total number of treated cases was studied in 1925, 2 to 4 years after malaria, and in 1933, 5 to 11 years after the malaria. The percentage of improved cases dropped from 33 to 30, while the deaths rose from 16 to 28 per cent. This indicates as Dattner had previously shown, that there is little tendency for patients to relapse when they have been effectively treated. Moreover, as I have shown, in pathologic studies upon a large number of treated cases, once the diffuse encephalitis is overcome, there is little tendency for it to recur. Finally, in all except a rather small number of cases, serologic reactions that become negative following treatment rarely again become positive. ,Usually there is progressive improvement in the spinal fluid reactions, whether or not clinical improvement occurs.

THE QUESTION OF HOME TREATMENT

To many patients that come to the physician's office, the problem of prolonged hospitalization while undergoing the malaria treatment is an almost insuperable one. Moreover, patients infected with malaria are potentially a source of infection to the community, so that many hospitals object to having such patients in the open wards. Bruetsch has been particularly alive to this situation and has investigated every case of spontaneous malaria that has occurred in the vicinity of Indianapolis. Fortunately, there has been no increase in the incidence of the disease since the treatment was introduced, but reasonable mosquito exclusion should be obtained.

It has been the practice of my colleagues and myself to allow the patient to have as many paroxysms as possible at home. This procedure requires additional vigilance upon the part of the physician, and good coöperation in the home environment, but the benefits to the patient not only from the financial standpoint, but also from the social, are quite obvious. (The malaria treatment is sufficiently known, now, so that the laity is coming to recognize it as a treatment for neurosyphilis.) Moreover, with the benign quarta strain that we are now using, the patients' sick time is much shorter than the time for recuperation. Patients not infrequently even keep on working on their good days between paroxysms until the disease reaches a moderately advanced stage. In the relatively healthy strong individuals that come to the physician, accidents are not likely to occur, and it has been our experience at St. Elizabeth's Hospital that disasters can occur even amid the best surroundings and under the most capable care. Eight of my own cases have been treated wholly at home, and 6 more have remained at home for a considerable period after the paroxysms began.

The family situation and the patient's reaction to the paroxysms are the determining factors in this matter of home care. Some patients are much upset by the chills and fever, while others take them very calmly. I have watched a good many of these patients in their homes, and have been impressed with the enthusiastic coöperation shown by almost all of them. Occasionally, of course, a patient becomes delirious or shows increased confusion during the course of the malaria and then he must be sent to the psychopathic wards, but in most cases a mild excitement can be handled in a general hospital if not in the home.

Summary

The best types of neurosyphilis from the therapeutic standpoint are those that show minimal clinical signs in association with positive serologic reactions. Asymptomatic neurosyphilis, *paresis sine paresi*, early dementia paralytica, early tabes and basilar meningitis yield the highest percentage of good results. Late tabes, advanced paresis, optic atrophy, nerve deafness, the vascular occlusions, and particularly the congenital forms of neurosyphilis yield poor or bad results.

Present indications are that the remissions secured in the various types of neurosyphilis are more complete and more lasting than are those that are obtained by other means of therapy. When patients have continued at their former level of efficiency for from 5 to 10 years and show only the persistent neurological signs and no deviations from normal in the body fluids, it is almost permissible to speak of a cure.

All the studies show the importance of early treatment. This can be accomplished by the use of malaria on a "once-for-all" basis while the patient remains at home or in a general hospital, almost without interrupting his occupation, and certainly not necessitating his transfer to a mental institution with the unavoidable stigma attached thereto. While follow-up treatment seems to be advisable on account of persistent positive serologic reactions in the blood, there is no great urgency, apparently, and both physician and patient are thereby freed from the specter of advancing cerebral disease if treatment should happen for one reason or another to be interrupted.

THE GENERAL PRACTITIONER'S CONCEPT OF THE TREATMENT OF ARTHRITIS*

Wallace M. Yater, M.D., F.A.C.P.

Professor of Medicine, Georgetown University School of Medicine

With such a distinguished audience and one composed of men who have done a large amount of the outstanding investigative work in the field of arthritis, I feel that I am displaying great temerity to address you upon the subject of arthritis. I have done no research work in this field; I have, however, kept rather well abreast of published results of the work of such men as yourselves. Not being a camp-follower of any one leader or group of workers in this field, I have been obliged, therefore, to weigh the results of numerous reports and to draw my own conclusions. Extensive contacts with members of our profession, mainly general practitioners, and personal experience with arthritic patients treated by them, have given me some insight into the ideas of the majority of our professional brethern concerning arthritis. I propose to discuss tonight what appears to be the general practitioner's concept of the treatment of arthritis and the whys and wherefores of it.

I think the two most poorly treated of the common diseases by the profession at large are diabetes and arthritis. There is no excuse for the poor treatment of diabetes, because the disease can be so readily brought under control and the principles of treatment are so well established. There is plenty of excuse, however, for the poor treatment of arthritis. In the first place, the disease, when chronic, requires months or years to be greatly affected by treatment, and the patient often changes from one physician to another so that consistent treatment is difficult. In the second place, the patient is frequently totally or almost totally disabled, and he may not be in position to afford the proper kind of treatment. In the third place, there is much yet to be learned concerning the cause and cure of arthritis. And in the fourth place, there is much confusion in the minds of many general practitioners regarding the proper treatment and particularly regarding the relative importance of various forms and aspects of treatment.

---

* Read at the annual banquet of the American Society for the Study of Arthritis, Washington, D. C., December 6, 1934.

This confusion is due to several factors. First, enthusiasts of one or another form of treatment have, usually innocently, led the practitioner to believe that theirs is the only form of treatment worth while. Secondly, the practitioner lends ear too readily to the persuasive chatter of the drug-house detail man and often gains his knowledge of therapeutics from him rather than from authoritative medical literature. Third, to judge of therapeutic results is difficult, especially in chronic diseases. Fourth, measures which relieve pain may lead the practitioner to believe that the treatment is having a beneficial effect upon the course of the disease. Fifth, because of improper diagnosis of the form of joint disease, therapeutic measures may be employed which are not indicated in the particular disease under treatment, to the exclusion perhaps of some important measures.

The Classification of the Arthritides

Although many now believe that the arthritides may be divided into two main groups—excluding gout, the specific infectious arthritides and the neurotrophic joint disturbances, namely, the infectious and the non-infectious forms, or rheumatoid arthritis and osteo-arthritis, there are still those who feel that osteo-arthritis is also infectious. Also, there are borderline cases in which the proper pigeon-holing into these two main types is difficult. In this discussion I shall assume that all are agreed that there are two main types of arthritides, rheumatoid arthritis and osteo-arthritis. I shall deal particularly with the more important one, rheumatoid arthritis, non-specific infectious arthritis or atrophic arthritis.

The Rôle of Foci of Infection

The doctrine of the importance of foci of infection in the causation of rheumatoid arthritis has been disseminated throughout the land. Billings and Rosenow were largely responsible for this dissemination. The latter's brilliant experiments and his theory of the elective localization of bacteria easily gained popular favor, although there arose many dissenters and many skeptics. Haden's work confirmed Rosenow's. Today, there are very few men in America who do not advocate the removal of infected teeth and tonsils in cases of arthritis. That there is a definite etiologic relationship between these infected portals of entry and the development of arthritis is demonstrated frequently by the dramatic results which follow the eradication of such infected organs in cases of acute or subacute arthritis. On the other hand, their elimination in cases of chronic arthritis rarely results in significant improvement, and it is conceded that the justification of such eradication rests upon the desire to prevent further inroads of infection through these sources. The great trouble today, so far as the general practitioner is concerned with the teeth and tonsils in relation to arthritis, is not so much his failure to remove these offending organs when indicated, as it is to keep him from removing them, especially teeth, when there is no good reason therefor.

The rôle of infected sinuses, chronic cholecystitis, chronic appendicitis, infected pelvic organs and the bacterial-laden colon in the causation of arthritis are less universally agreed upon, and treatment along these lines is less heroically carried out. The infected prostate is sometimes vigorously massaged and perhaps to advantage, but often it is sadly neglected by the general practitioner.

The evidence of the infectious nature of rheumatoid arthritis derived from the beneficial effect of the removal of foci of infection in some cases is indirect evidence. Let us turn to the question of direct evidence.

Direct Evidence of the Infectious Nature of Rheumatoid Arthritis

In the last few years much work has been done by careful investigators on the bacteriologic aspects of arthritis. I should like to review briefly some of this work, dividing the results into those for and against the belief that rheumatoid arthritis is the result of direct invasion of the joints by bacteria reaching the joints through the blood stream.

Forkner, Shands and Poston (1928) obtained positive cultures from the synovial fluid in 22 per cent of 63 cases, the main organism being Streptococcus viridans. Poston (1929) found the same type of organism in cultures from the lymph nodes draining arthritic joints in 60 per cent of 120 glands. Cecil, Nicholls and Stainsby (1929) cultured attenuated hemolytic streptococci from the blood and/or synovial fluid in 48 of 78 cases of rheumatoid arthritis, obtaining what they termed a "typical strain" in 40 cases; whereas in 19 cases of osteo-arthritis the cultures were negative. In 1931 the same investigators obtained positive blood cultures in 96 (62.3 per cent) of 154 cases and positive joint cultures in 33 (67.3 per cent) of 49 cases. Other workers, mainly Gray, Fendrick and Gowen, Wetherby and Clawson, Ashworth, and Klugh have since then reported similar high percentages of positive streptococcus cultures from the blood and joints of arthritic patients.

On the other hand, there are an equally large number of creditable workers who have been unable to obtain similar results. Nye and Waxelbaum (1930) found only 1 positive culture in 33 cases. Bernhardt and Hench (1931) had no positive cultures in 20 cases. Dawson, Olmstead and Boots (1932) obtained only 3 positive streptococcus cultures in 80 cases. Jordan and Boland were unsuccessful in 32 cases of acute arthritis. Blair and Hallman (1934) procured approximately the same number of positive cultures of the synovial fluid and tissues in cases of rheumatoid arthritis (14 out of 57) as in cases of other joint diseases (33 out of 175), and various types of organisms in both groups. Long, Olitsky and Stewart (1928) demonstrated how easy it was to obtain contaminated cultures under the most rigorous Carrel technic, and Lichtman and Gross (1932) showed that positive blood cultures are obtainable in 5 to 15 per cent of all types of cases other than rheumatic.

From this brief review it would seem, therefore, that for the present, proof of the actual presence of streptococci in the blood and joints in cases of rheumatoid arthritis is not sufficiently clear to be conclusive.

On the other hand, the presence of streptococcal agglutinins in high titer in the blood of a large percentage of patients with rheumatoid arthritis and not in other conditions does seem to have been conclusively demonstrated by Cecil and his co-workers (1929 to 1933) and by Dawson, Olmstead and Boots (1931). The two groups differed, however, in that the former claimed specificity for their "specific strain" hemolytic streptococcus, whereas the latter failed to show any specificity of the agglutination reaction for any one strain. It is plausible to conclude with the latter group that in the majority of cases rheumatoid arthritis results from infection with non-specific hemolytic streptococci as the response of the affected tissues to products of these organisms absorbed from a distant focus.

This discussion of the bacteriologic and immunologic problems of rheumatoid arthritis logically brings up the question of the effect of vaccine therapy on the disease.

VACCINE THERAPY

Although most reports of vaccine therapy in rheumatoid arthritis are unsatisfactory, popularity of this method is gaining ground, largely because it is sponsored by a few outstanding members of the profession. The results of Pemberton, Kolmer, Osgood, Kinsella, Boots and Dawson and Archer show the doubtful value of this form of treatment. Even Cecil, one of the more ardent proponents, admits that it is far from universally useful. His associates, Nicholls and Stainsby, are apparently not convinced of the value of vaccine therapy; at least, they claim better results with other than Cecil's "typical strain" streptococcus. Burbank and Christensen have reported favorable results in 1000 cases with a polyvalent mixed type vaccine and stock strains of streptococci, staphylococci and B. coli. Wetherby and Clawson have reported clinical improvement in 75 per cent of their cases and have demonstrated the necessity of using the intravenous route as opposed to the subcutaneous. Most vaccines used are those obtained from blood and joint cultures.

Traut and Herrold used vaccines prepared from cultures of organisms on the rectal mucosa of their arthritic patients. They found streptococci much more frequently on the rectal mucosa of arthritic patients than of controls, usually the green-producing form, less commonly the hemolytic. In some cases staphylococci were especially numerous. These rectal organisms were strongly agglutinated by the serum of arthritic patients. Streptococci were rarely found in the rectum in cases of osteo-arthritis. These workers claimed that 48 per cent of a group of cases of chronic arthritis were markedly improved or recovered with the aid of a non-specific vaccine, but that 68 per cent treated by vaccine of streptococci obtained from rectal or other foci were markedly improved. Vaughan, using by preference an autogenous fecal vaccine but also pooled fecal organisms, reported 47 of 100 cases "sufficiently relieved to be well satisfied with the treatment." He recalls that Crowe by a similar treatment reported good results in 68 per cent.

It appears that the value of vaccine therapy in arthritis has not been demonstrated to the satisfaction of all, but that sufficient encouragement has been given for certain individuals or groups to continue its use until its value and limitations have been definitely established. Until such time, however, it would probably be well not to encourage the general practitioner in this method of therapy, since more valuable methods may be neglected. My own observations have shown me that such neglect results when some supposedly specific form of therapy is being used. If vaccine therapy of this kind is used, however, the vaccine probably should be given in small amounts intravenously. I believe that point is sufficiently well established.

NON-SPECIFIC VACCINE OR FOREIGN PROTEIN THERAPY

There have been many advocates of foreign protein "shock" therapy, especially for active febrile cases of rheumatoid arthritis. Perhaps some of the reported satisfactory results of supposedly specific vaccine therapy have been due to protein "shock" or fever therapy. Cecil is enthusiastic about this form of therapy. There is apparently great variation of opinion in this connection, however, and the same conclusions may be drawn for this form of therapy as for other vaccine therapy. It would appear that typhoid vaccine is as satisfactory a medium as any if this form of therapy is to be used.

THE USE OF ORTHO-IODOXYBENZOATE

Since Young and Youmans reported in 1926 upon the successful use of the ammonium salt of ortho-iodoxybenzoic acid intravenously administered in 43 cases this method of therapy has become popular in some quarters. Smith and Cottrell have both reported some success with the oral use of the calcium salt, using this method because of the severe general reactions which may follow intravenous administration. Recently Wheeldon has written of the beneficial effect of the drug in a general group of 236 arthritic patients over a period of 2 years. Swelling of joints was reduced, range of motion enlarged and general well-being greatly enhanced, but relief of pain was not remarkable. He reported marked to excellent results in 50 per cent and fair to good results in 36 per cent. He quotes Tabern as claiming that the drug has a definite bactericidal action in the blood stream and perhaps in infected membranes as well. Many others have not been enthusiastic about the results of this form of treatment, however, and I do not believe the use of this drug has yet become popular among the profession at large.

SULPHUR THERAPY

Recently the use of colloidal sulphur has been advocated for the treatment of rheumatoid arthritis. In this country Wheeldon and Main have reported favorable results from its use in 250 cases. The drug has been used in Europe for 15 years, apparently with good results. Schlagintweit claims that the therapeutic effect of sulphur is primarily due to the polysulphides splitting up into elementary sulphur at such foci where a localized inflammation exists, due to a higher concentration of hydrogen ions during an inflammatory process. Oxidation and chemical reduction are thereby potentially influenced. Senturia has recently observed improvement in 75 per cent of 60 unselected cases. Sullivan and Hess of Georgetown University found the majority of 103 cases of arthritis to have a significantly lower cystine content of the finger nails than the general average of 26 normal persons. They conclude that this implies an intoxication factor in arthritis which draws on the sulphur complexes of the body, such as glutathione, and thus diverts the sulphur from its normal channels. After sulphur therapy they found that the cystine content of the finger nails increased when the arthritis improved, indicating that the sulphur, directly or indirectly, combines with the injurious material and thus spares the normal body sulphur complexes from being diverted, or stimulates the general defense mechanism of the body. Woldenberg has confirmed the work of Sullivan and Hess. General practitioners are just beginning to try sulphur therapy. Unfortunately they are apt to emphasize this form of treatment at the expense of better established forms.

The Use of Analgesic Drugs

Perhaps the most commonly used drugs by the general practitioner are those of the cincophen group and the salicylates other than ammonium and calcium ortho-iodoxybenzoate. Cincophen has a markedly analgesic effect in many cases, the salicylates only a fair analgesic effect. I am afraid many patients with chronic arthritis get little more than bed rest and some analgesic drug. Relief of pain is important, of course, but that is purely symptomatic or palliative treatment.

Dietotherapy

Apparently there is a general impression among practitioners that diet is important in the treatment of arthritis, but there is no uniform opinion of the proper diet to use. Most often I have noticed that the main idea is that proteins should be restricted. Leaders in the field of arthritis have various opinions also about the importance of dietotherapy. Pemberton and Peirce (1932) state that "dietetic therapy affords the *sine qua non* of successful treatment in a large number of cases of arthritis. Such therapy should be applied, however, to appropriate cases only, and on a basis of a familiarity with the principles concerned and with the limiting factors. . . ." Their main idea seems to be that there should be a diminished caloric intake and especially reduction in amount of carbohydrates. In 1920 Pemberton and Foster reported diminished glucose tolerance in cases of chronic infectious arthritis. It has been noted, especially by Fletcher (1922), who confirmed this point, that the colon in cases of arthritis is often atonic and redundant and that marked improvement in the colon follows reduction in the carbohydrate content of the diet and the use of a high "green" and vitamin diet. Archer (1929), however, did not confirm the reduction in the glucose tolerance in cases of arthritis, and Haft (1933) noted the same high incidence of reduplications, ileocecal valve incompetence and lack of haustral markings in a control group. Haden thinks the evidence shows lack of vitamin B. He suggests adding wheat germ oil or yeast to supply this deficiency and also cod liver or halibut oil to afford extra vitamins A and D. He recommends also a low carbohydrate and low caloric diet with abundant protein, the carbohydrate content to be increased when the patient has recovered. Archer (1934) concludes that extra vitamins do not make any difference in the treatment of arthritis, that when poorly nourished the patient needs a well balanced, high caloric diet and when overweight, reduction in the caloric content. In the Primer on Rheumatism of the American Committee for the Control of Rheumatism a liberal view is also sponsored. Fruits, vegetables and adequate proteins with restriction of the heavy starches but extra amounts of vitamins A, B and D are advocated. It would be logical to conclude that each case should be individualized so far as diet is concerned, depending upon the condition of the colon and the nutritional state of the patient.

COLONIC THERAPY

Constipation should naturally be corrected, preferably without resorting to laxatives. Lately colonic irrigations have assumed importance in the minds of many physicians, apparently with the idea of removing toxins and pathogenic bacteria. I feel that this idea should be discouraged, at least until there is more evidence that such therapy is of real value, since the treatment is apt to be overdone to the neglect of methods of proved value.

LOCAL TREATMENT OF THE JOINTS

I fear that local treatment of the joints is sadly neglected by the profession at large, mainly perhaps because this is difficult to administer at home and even in many of our hospitals. This difficulty appears to be the main reason why special sanitaria for arthritic patients might well be established, as Cecil and others advocate. The investigations of Pemberton and his associates and of others have afforded "strong evidence that interference with the blood supply, probably in the nature of vaso-constriction, constitutes at least a part, probably a large part, of the underlying physiologic disturbance productive of the phenomena of chronic arthritis, especially the hypertrophic type as encountered in human beings." The results of Rowntree and his associates in arthritic patients treated by lumbar sympathetic ganglionectomy and ramisectomy have confirmed this point in a unique way. Physical therapy and orthopedic treatment are all-important for increasing the circulation in the joints and for preventing and correcting deformities. Rest for the actively inflamed joints, and heat or diathermy with massage and active and passive motion in the post-inflammatory stage are absolutely essential. Coöperation with the orthopedist in both the acute and chronic stages of the disease is necessary to bring about the most satisfactory result.

TREATMENT OF THE PATIENT AS A WHOLE

Authorities agree that arthritis is not a disease merely of the joints but also of the entire body. It is a constitutional disease. I have saved discussion of this phase of treatment until the last, because I believe it to be the most important. The general debility, the anemia, the low blood pressure, the loss of weight, the low basal metabolic rate and the deranged gastro-intestinal function all attest to the systemic nature of the disease. If all other treatment is dispensed with, much may still be accomplished by treating the patient as a whole. Conversely, if this phase of treatment is neglected other forms will be of little avail. Rest of the body as a whole, correction of posture, iron for the anemia, arsenic for its tonic effect, a well balanced diet, promotion of proper intestinal function and other general upbuilding therapeutic measures must be employed if one is to accomplish lasting results. Here again I fear the practitioner fails to appreciate the value of general therapy. He is too prone to concentrate upon the joints, although, as stated before, he fails to give them sufficient or proper local treatment.

Climatotherapy, the patient being moved to a warm, dry climate, is advisable, but unfortunately many are unable to move to more desirable sections of the country. Well placed sanitaria would solve a difficult problem in this regard, but the profession as well as the laity have not been educated to the value of such institutions, as they have been in connection with the treatment of tuberculosis. Isolation may not be as important with arthritis, but such specialized hospitals would be of great benefit to sufferers from this disabling disease.

SUMMARY AND CONCLUSIONS

It appears to me, therefore, that by and large the general practitioner is prone to emphasize those forms of treatment which are either most dramatic and mysterious or which give the best immediately palliative results, and to neglect the standard and most useful methods in the long run. My own feeling about therapeutic measures is that new methods should be thoroughly proved by those in the best position to demonstrate their value before the profession at large applies them in everyday practice. It is a failing of human nature, however, to want to try anything which in some unknown way may work miraculous results in apparently hopeless situations. It is this trait of man which leads the individual physician to utilize any therapeutic method that is advocated by those who should know more about a particular condition than he does. It is this very failing also which behooves you gentlemen of the American Society for the Study of Arthritis to be wary in the dissemination prematurely of the results of your investigations. Your Society, composed as it is of leaders in the field of arthritis, has two extremely important functions: one, to foster investigative work on the cause and treatment of arthritis, and the other to instruct the rank and file of the medical profession in the most tried and most useful methods of treatment of this dread disease.

BIBLIOGRAPHY

American Committee for the Control of Rheumatism: Primer on Rheumatism—Chronic Arthritis. Published by American Medical Association, 1934.

Archer, B. H.: Arch. Int. Med., 1929, **44**, 37; ibid., 1929, **44**, 238.

Archer, B. H.: J. A. M. A., 1934, **102**, 1449.

Ashworth, O. O.: Virginia M. Monthly, 1932, **59**, 452.

Bernhardt, H., and Hench, P. S.: J. Infect. Dis., 1931, **49**, 489.

Blair, J. E., and Hallman, F. A.: Arch. Int. Med., 1934, **53**, 87.

Burbank, R., and Christensen, B. E.: J. Bone & Joint Surg., 1931, **13**, 246.

Cecil, R. L.: J. A. M. A., 1934, **103**, 1583.

Cecil, R. L., Nicholls, E. E., and Stainsby, W. J.: Arch. Int. Med., 1929, **43**, 571.

Cecil, R. L., Nicholls, E. E., and Stainsby, W. J.: Am. J. M. Sc., 1931, **181**, 12.

Cottrell, J. E.: Am. J. M. Sc., 1927, **174**, 623.

Crowe, H. W.: J. Lab. & Clin. Med., 1930, **15**, 1072.

Dawson, M. H., and Boots, R. H.: New England J. Med., 1933, **208**, 1030.

Dawson, M. H., Olmstead, M., and Boots, R. H.: Proc. Soc. Exper. Biol. & Med., 1931, **28**, 419; ibid., 1931, **28**, 421.

Dawson, M. H., Olmstead, M., and Boots, R. H.: Arch. Int. Med., 1932, **49**, 173.

Dawson, M. H., Olmstead, M., and Boots, R. H.: J. Immunol., 1932, **23**, 187; ibid., 1932, **23**, 205.

Fletcher, A. A.: Arch. Int. Med., 1922, **30**, 106.

Fletcher, A. A.: J. Lab. & Clin. Med., 1930, **15**, 1140.

Fletcher, A. A., and Graham, D.: Am. J. M. Sc., 1930, **179**, 91.

Forkner, C. E., Shands, A. R., Jr., and Poston, M. A.: Arch. Int. Med., 1928, **42**, 675.

Goldhaft, A. D., Wright, L. M., and Pemberton, R.: Am. J. M. Sc., 1930, **180**, 386.

Gray, J. W., Fendrick, E., and Gowen, C. H.: Texas State J. Med., 1932, **28**, 317.

Gray, J. W., and Gowen, C. H.: Am. J. Med. Sc., 1931, **182**, 682.

Haden, R. L.: South. Med. J., 1926, **19**, 253.

Haden, R. L.: M. Clin. North America, 1934, **17**, 901.

Haft, H. H.: Am. J. M. Sc., 1933, **185**, 811.

Hench, P. S., Henderson, M. S., Rowntree, L. G., and Adson, A. W.: J. Lab. & Clin. Med., 1930, **15**, 1247.

Jordan, E. P., and Boland, J. P.: J. Infect. Dis., 1930, **46**, 148.

Kinsella, R. A.: J. A. M. A., 1933, **101**, 345.

Klugh, G. F.: South. M. J., 1931, **24**, 706.

Lichtman, S. S., and Gross, L.: Arch. Int. Med., 1932, **49**, 1078.

Long, P. H., Olitsky, P. K., and Stewart, F. W.: J. Exper. Med., 1928, **48**, 431.

Margolis, H. M., and Dorsey, A. H. E.: Arch. Int. Med., 1930, **46**, 121.

Nicholls, E. E., and Stainsby, W. J.: J. Clin. Investigation, 1931, **10**, 323.

Nicholls, E. E., and Stainsby, W. J.: J. A. M. A., 1931, **97**, 1146.

Nicholls, E. E., and Stainsby, W. J.: J. Clin. Investigation, 1933, **12**, 505.

Nye, R. N., and Waxelbaum, E. A.: J. Exper. Med., 1930, **52**, 885.

Osgood, R. B.: J. A. M. A., 1933, **101**, 1266.

Pemberton, R.: Philadelphia, Lea & Febiger, 1929, p. 115.

Pemberton, R., and Foster, G. L.: Arch. Int. Med., 1920, **25**, 243.

Pemberton, R., and Peirce, E. G.: Ann. Int. Med., 1932, **5**, 1221.

Poston, M. A.: J. A. M. A., 1929, **93**, 692.

Rosenow, E. C.: J. A. M. A., 1914, **62**, 1146.

Rowntree, L. G., and Adson, A. W.: J. A. M. A., 1927, **88**, 694.

Rowntree, L. G., and Adson, A. W.: J. A. M. A., 1929, **93**, 179.

Schlagintweit, E.: München. med. Wchnschr., 1930, **77**, 532.

Senturia, B. D.: J. Bone & Joint Surg., 1934, **16**, 119.

Smith, M.: Boston M. & S. J., 1927, **196**, 305.

Stainsby, W. J., and Nicholls, E. E.: J. Lab. & Clin. Med., 1933, **18**, 881.

Sullivan, M. X., and Hess, W. C.: J. Bone & Joint Surg., 1934, **16**, 185.

Sullivan, M. X.: M. Ann. District of Columbia, 1934, **3**, 233.

Tabern, D. L.: Clin. Med. & Surg., 1928, **35**, 741.

Traut, E. F.: Ann. Int. Med., 1933, **6**, 913.

Traut, E. F., and Herrold, R. D.: J. Infect. Dis., 1929, **45**, 172.

Vaughan, W. T.: Virginia M. Monthly, 1932, **59**, 7.

Wetherby, M., and Clawson, B. J.: Arch. Int. Med., 1932, **49**, 303.

Wetherby, M., and Clawson, B. J.: J. A. M. A., 1932, **98**, 1974.

Wheeldon, T. F., and Main, R. J.: J. Bone & Joint Surg., 1933, **15**, 94.
Wheeldon, T. F.: Ann. Int. Med., 1934, **7**, 1540.
Woldenberg, S. C.: M. Rec., 1934, **139**, 161.
Wright, L. M., and Pemberton, R.: Arch. Int. Med., 1930, **45**, 147.
Young, A. G., and Youmans, J. B.: J. A. M. A., 1926, **87**, 746.

TENDON TRANSPLANATION FOR PARALYSIS OF THE EXTERNAL RECTUS MUSCLE*

Report of a Case

E. Leonard Goodman, M.D.

Clinical Instructor in Ophthalmology, George Washington University School of Medicine

In general surgery tendon transplantation was first performed in 1770 when Missa restored the function of a finger. However, it was more than 100 years later before any recorded attempt was made to transplant muscles or portions thereof to improve the function of the eyes in cases of paralysis of the extra-ocular muscles. Prior to this time aid had been sought only by tenotomy of the opposing muscles. Parinaud, in 1897, and Motais, in 1898, brought forth their methods for correcting ptosis by transplantation of a portion of the superior rectus tendon. Five years later, in 1903, Jackson reported 2 cases of paralysis of the superior oblique in which the tendon of the superior rectus was used to overcome the diplopia and to bring the eyes into parallelism. The various recorded types of tendon transplants which I have been able to find in the literature in chronological order are as follows:

1. Transplantation of the superior rectus muscle backward and outward for paralysis of the superior oblique muscle.
2. Transplantation of portions of the superior and inferior recti muscles to the tendon of the external rectus muscle for paralysis of the latter.
3. Transplantation of portions of the tendons of the internal and external recti muscles to the tendon of the inferior rectus muscle for absence or complete paralysis of the latter.
4. Transplantation of portions of the superior and inferior recti muscles to the tendon of the internal rectus muscles for paralysis of the latter.
5. Transplantation of the upper halves of the internal and external recti muscles and recession of the inferior rectus muscle for paralysis of the superior rectus muscle.
6. Transplantation of the tendon of the superior oblique muscle after it had been removed from the trochlea to produce internal rotation in third-nerve paralysis.

Report of Case

Ernest Bryant, a colored male, aged 32 years, was first seen at the Episcopal Eye, Ear and Throat Hospital on the service of Dr. Griffith. He had been in an automobile accident a year previously when he suffered a fracture of the base of the skull. Previous to this time he had had no ocular difficulty. On examination he presented a bilateral paralytic convergent squint. The right eye was convergent 45 degrees and could not be moved outward from this position. His left eye was convergent 60 degrees and could not be brought to the median position. Vision in the right eye was normal and the right pupil reacted to light. There was no light perception in the left eye and the pupillary light reflex was absent, but there was a good consensual reflex. Fundus examination in the right eye showed no pathology, while in the left eye a primary atrophy of the nerve head was noted. The diagnosis of right abducens paralysis and left abducens paresis and optic atrophy, all due to trauma, was therefore made. The patient was operated upon the middle of July under general anesthesia. The following technic was employed: A horizontal incision about 1 cm. long was made over the insertion of the superior rectus tendon. This was denuded of its capsular attachments, and the fibers of the outer two-thirds of the muscle were separated from those of the inner one-third for over 1 cm. from the scleral insertion. A Prince forceps was applied to the outer portion of the muscle and it was severed from its attachment to the globe. A black silk suture was double-looped through its tendinous end. A similar procedure was performed upon the inferior rectus. Next, a vertical incision approximately 1 cm. long was made over the insertion of the external rectus tendon. This left 2 narrow bridges of conjunctiva, between the lateral and the superior and inferior conjunctival incisions. The external rectus tendon was bared as in the usual advancement or resection operation, and it was severed from the globe, leaving a 1 mm. stump. Approximately 4 mm. of the muscle was then resected and its central third was sutured to the stump with a mattress suture. The sutures which had been placed in the portions of the superior and inferior recti were then brought under the conjunctival tunnels above and below the cornea and made fast to the upper and lower portions, respectively, of the stump of the external rectus. Then the upper and lower borders of the end of the resected lateral rectus were also included in these sutures before they were cut. A vertical incision was then made over the insertion of the internal rectus, and an O'Brien recession back nearly to the equator of the eye was performed after the muscle had been thoroughly cleaned of all its attachments. All the conjunctival openings were closed by interrupted sutures. The post-operative recovery was uneventful, and the reaction was not excessive. On the second dressing, 2 days after the operation, the patient showed an abducting power of the left eye of about 60 degrees. One month after the operation the left eye showed a residual convergence of 25 degrees. The patient still had the ability of 60 degrees external rotation on looking to the left. This condition persisted when the patient was last seen about 2 months following the operation. Since the left eye was blind, no diplopia was complained of. The cosmetic effect had been improved and a very large degree of external rotation obtained.

---

* Read before the Section on Ophthalmology and Otolaryngology, October 19, 1934.

Discussion

I believe the residual 25 degrees convergence with the eyes in the "eyes front" position was due to the fact that there was a continued attempt on the part of the patient to turn the eyes to the right in order to bring the seeing eye more nearly into the mid-position. This resulted in a concomitant impulse being sent to the internal rectus of the left eye. If the operation which is to be done on the right eye proves successful I feel that the residual squint of the left eye will disappear.

There have been several explanations propounded as to the mechanism of the action of the transplanted muscles by different operators. Thus, O'Connor, in 1919, in reporting a case of 35 degrees convergent paralytic squint of the right eye, successfully operated upon by his classical operation, explained the resulting 35 degrees of abducting power which he obtained on the basis that the vertical recti act as secondary abductors at all positions beyond the 27 degree arc from the primary. This being so, when the mechanism of their attachments is altered by broadening and by lowering to a point closer to the equator (closer to the median horizontal plane of the eye), the leverage in the outward direction is markedly increased so that rotation by their action will occur before the 27 degree position is reached. He, therefore, believes that by adding the power of a functional innervation to help the mechanical alterations the outward rotation is explained.

On the other hand, Key believes that the transplanted tendons act merely as ligaments (due to adhesions) and that the outward rotations are due to the actions of the oblique muscles. Thus, he explains the 20 degree abducting power which he obtained in his operation on a child of 6½ years who had a congenital complete paralysis of the external rectus muscle. He believes that the cases previously reported by Hummelshein, O'Connor, Sweet and Rodin, in which greater abducting power resulted from operation, were cases of only paretic external recti. As proof of this he cites the fact that these eyes could be brought nearly or entirely out to the mid-line prior to operation and that the final wide movements obtained were due entirely to the advancements and tenotomies which had been performed along with the muscle transplants.

Still another explanation is given by Gifford, who believes that the new transplants do not reactivate themselves as suggested by O'Connor, but that the action is due to the tonic contraction of the living muscle transplants. Thus, in lateral movement to the right there occurs a synchronous relaxation of the right internal rectus muscle (according to Sherrington's Law of reciprocal muscle innervation) and that during this relaxation the muscle transplants, retaining the tone of the superior and inferior recti, may now, because of their new locations, rotate the eye outward.

A perusal of the literature brings out the following interesting facts. Thirty-five cases of transplantation of the tendons of the extra-ocular muscles have been reported. Eighteen of these appear to have been successful from a cosmetic and functional point of view. Thirteen were reported as partially successful and 4 cases were reported by Elsehnig as failures. Outward rotations of from 0 to 45 degrees from the primary position were reported.

Almost all reporting these operations have varied the technic of their predecessors more or less radically as they saw fit, so that there appears to be no standard technic employed. Peter, in a personal communication, says that he believes success rests on a free recession of the internal rectus muscle, an ample advancement or resection of the external rectus muscle and the use of more than half of the width of the superior and inferior recti for the transplants.

In conclusion, I would like to recommend the use of the smaller conjunctival incisions and the resulting conjunctival bridges as used in the operation here reported. By causing less trauma than the complete or nearly complete circular conjunctival incision they are apt to result in fewer adhesions and leave a better chance for the establishment of true function in the transplanted muscles.

BIBLIOGRAPHY

Adler, F. H.: Reciprocal Innervation of Extraocular Muscles. Arch. Ophth., 1930, **3**, 318.

Franklin, W. S., and Cordes, F. C.: Tendon Transplantation of Ocular Muscles. Report of Two Cases. Contrib. Ophth. Sc., Jackson Memorial Volume, 1926, p. 248.

Gifford, S. R.: Muscle Transplantation for Paralytic Strabismus. Arch. Ophth., 1929, **2**, 651.

Jackson, E.: Operation on the Tendon of Superior Rectus for Paresis of the Superior Oblique. Ophth. Rev., 1903, **22**, 61.

Key, B. W.: Transplantation of Temporal Half of Vertical Recti Tendons in Case of Complete Paralysis of External Rectus. Arch. Ophth., 1929, **2**, 39.

O'Connor, R.: Transplantations of Portions of Vertical Recti for Abducens Paralysis with Successful Result. Am. J. Ophth., 1929, **2**, 197.

O'Connor, R.: Ocular Tendon Transplantation. Three New Methods. Arch. Ophth., 1931, **5**, 209.

Parfonry, J.: Surgical Treatment of Paralytic Strabismus. Clin. Ophth., 1928, **32**, 602.

Peter, L. C.: Tendon Transplantation for Paralysis of Superior Rectus. Am. J. Ophth., 1930, **13**, 869.

Peter, L. C.: Use of Superior Oblique as Internal Rotator in Third Nerve Paralysis. Tr. Am. Ophth. Soc., 1933, **31**, 232.

Rowland, W. D.: Paralytic strabismus—Case Report. Eye, Ear, Nose and Throat Monthly, 1931, **10**, 460.

Sweet, W. M.: Tendon Transplants in Paralysis of External Rectus. Am. J. Ophth., 1921, **4**, 866.

Turner, H. H.: Transplantation of Superior and Inferior Recti Fibers for Convergent Strabismus. Am. J. Ophth., 1920, **3**, 441.

Woodruff, H. W.: Tendon Transplantation of the Eye Muscles. Tr. A. M. A. (Sect. Ophth.), 1917, p. 276.

EMPYEMA OF THE URETERAL STUMP*

Report of a Case

R. M. LeComte, M.D.

Professor of Urology, Georgetown University School of Medicine

On July 25, 1934, I was consulted by E. W. H. (Case No. 5191), a male, white, married, fruit-grower from Florida, 41 years of age, who was referred to me by Dr. Harry A. Ong. He gave a history of having had severe intermittent left-sided lumbar pain for a number of years until 1922, when he was operated upon by a prominent genito-urinary surgeon on the Pacific coast and the left kidney removed. About a year before he had begun to have stiffness and an uneasy feeling in the right side with a marked pyuria but without painful and frequent urination. This condition had resisted persistent treatment with urinary antiseptics. On examination, I noted scars in the left lumbar and left inguinal regions, about what one would expect from a left ureterotomy in the pelvic segment and a left nephrectomy. The urine was clouded from pus and gram-negative bacilli but was negative for albumin. The clinical diagnosis at this time was probable infection of a lone kidney and urologic study for purposes of diagnosis and treatment was recommended and accepted by the patient. By cystoscopic examination on July 26, the bladder urine was found to be still clouded from pus and bacilli. The bladder was chronically inflamed and "tooth-paste" pus was noted issuing from the left ureteral orifice. Indigocarmine appeared at the right orifice 5 minutes after intravenous injection; none appeared on the left side during the course of the examination. The right ureter was catheterized readily with a number 6 F. catheter. Urine flowed in normal rhythm; it was dark blue in color, clear and negative on microscopic examination. Efforts to catheterize the left ureteral orifice were unavailing, all the instruments tried being arrested at 1 cm. above the bladder. On the x-ray film a round shadow 1 cm. in diameter was noted in the left bony pelvis, so located that it might be in the juxta-vesical portion of the left ureter at about the level where obstruction had been noted to the passage of the catheters. The right pyelogram was normal. At this point I commenced to doubt the accuracy of the history of left nephrectomy. It did not seem that further studies either by the cystoscope or by intravenous urography would give definite information as to whether or not there was an infected functionless kidney on the left side, and I telegraphed to the surgeon who had done the operation in 1922, receiving a prompt reply from his assistant to the effect that the operation had been left nephrectomy and ureterectomy. This made it definite that any operative attack should be in the pelvic and not in the lumbar region. A cystogram on July 27, showed a normal bladder without regurgitation into the left ureter. On July 30, under spinal anesthesia, a median suprapubic incision was made, the bladder located and dissected loose on the left side. Due to adhesions the ureter could not be readily located extravesically, so that the bladder was opened, the left ureteral orifice located and a probe passed into it for orientation. With this aid, it was not difficult to locate the stump of a ureter which was normal in caliber at the bladder end, about 2 cm. in length and which ended in a tense bulblike enlargement located deep in the pelvis between the bladder and rectum adherent to the lateral wall of the pelvis. The ureter was located and severed just outside the external surface of the bladder, and the bladder opening was closed by inverting the stump of the ureter. Using the proximal end of the cut ureter for tension, it was not difficult to follow the outer surface of the bulbous mass at its end and to remove it. The specimen was a roughly spherical sac about 5 cm. in diameter, filled with pus and containing a flattened dark stone about 1 cm. in diameter which roughly approximated that of a mushroomed 22 caliber bullet in shape. The wound was closed with cigarette drainage to the perivesical space and a pessar catheter to the bladder. The tube was removed on the twelfth day. The suprapubic incision had healed by the nineteenth day, and the patient left the hospital on the following day. A letter from him on October 9, stated that he was quite comfortable but still has pus in small amount in the urine.

---

* Read before the Washington Urological Society, October 15, 1934.

Difficulties with the ureteral stump after nephrectomy seem to be relatively uncommon. I have had 2 other cases in my personal experience. The first occurred in a man upon whom I had done an emergency nephrectomy for ruptured kidney.* The patient's condition at operation did not admit of even a fairly thorough "toilet" of the wound, much less freeing the ureter from clots. Eight months later he experienced right renal colic and later frequency of urination and hematuria. Cystoscopic examination showed an elongated black stone in the bladder; it was quite hard but was crushed and removed with a rongear forceps. I believe that a part of the blood clot left in the ureter in this case failed to be extruded or absorbed, underwent calcareous change and was passed into the bladder.

My second case occurred in a young man of 17 years of age upon whom I had done a secondary intracapsular nephrectomy for a large pyonephrosis. A mild pyuria persisted after the operation, and cystoscopic examination showed it to come from the stump of the ureter from which the kidney had been removed. It yielded readily to pelvic lavage with silver nitrate.

---

* LeComte, R. M.: Spontaneous Rupture of Hydronephrosis. J. Urol., 1926, **15**, 517.

DERMATOLOGICAL CONDITIONS ENCOUNTERED BY THE OTOLARYNGOLOGIST AND OPHTHALMOLOGIST*

Charles B. Campbell, M.D.
Washington

You have requested me to read a paper on this subject before your Section. Enumeration of the most frequent skin conditions will cover the field for all practical purposes. The locations and the lesions found will first be stated, then definitions and symptoms of the individual lesions will be given, followed by useful prescriptions.

Locations and Lesions

Scalp: Seborrhea, Ringworm, Impetigo Contagiosa, Pediculosis and Psoriasis.

Face: Acne, Eczema, Tinea Barbae, Sycosis Vulgaris, Epithelioma, Lupus Erythematosus and Lupus Vulgaris.

Eyelids: Eczema, Xanthelasma Palpabrarum and Epithelioma.

Lips: Herpes Simplex, Chelitis (cracked lips), Chancer, Eczema and Epithelioma.

Mouth: Leukoplakia, Mucous Patches and Epithelioma.

Ears: Eczema and Epithelioma.

Neck: Eczema, Acne, Boils and Syphilitic Lesions.

You can see by this that the list of skin conditions you are likely to encounter is extensive. Some of these dermatoses are very contagious, and the diagnosis and proper treatment should be started early.

Definitions and Symptoms

ECZEMA

Definition.—Non-contagious inflammation of the skin, resulting from some primary infection or irritation. It passes through the stages of erythema, vesiculation and pustulation, with itching, terminating in a serous discharge.

Symptoms.—Eczema is the bugbear of the dermatologist, and leads the other diseases in frequency. It has a special characteristic all its own; namely, redness varying from a slight erythema to a deep red. There is always itching and moisture. Scratching is noticeable by the excoriations. The disease is never primary, but is secondary to some local irritation or infection. Eczema may cover a small area or be very extensive.

---

* Read before the Section on Ophthalmology and Otolaryngology, October 19, 1934.

IMPETIGO CONTAGIOSA

Definition.—An inflammatory skin disease characterized by isolated pustules and found usually in children.

Symptoms.—There are thick, crusted lesions appearing on the face, but, at times, extending into the scalp. Under the crusts is found a yellow serum, and the base of the spots looks like a honeycomb. Children should be isolated and kept from school. It should be cured before other treatments are begun.

RINGWORM OF THE SCALP

Definition.—A contagious disease due to a fungus of the tricophytosis family.

Symptoms.—It produces round, bald spots of a moth-eaten appearance. Hairs have broken ends. Epilation of these areas is easy. A rather rare condition is tinea kerion, composed of pustular lesions. In this country, we infrequently find favus, a ringworm affection of the scalp, which is more prevalent in foreign countries.

RINGWORM OF THE BEARDED REGION

Definition.—Called tinea barbae, and caused by the ringworm fungus.

Symptoms.—There is infection of the hair follicles with some inflammation; also a ringlike formation shown by darker color. Hairs in this area are not easily pulled out as they are in the sycosis vulgaris of the bearded region (v.i.).

SYCOSIS VULGARIS (SYCOSIS RINGWORM)

Definition.—This is a chronic infection of the hair follicles of the beard, due to staphylococcus organisms. Those who shave themselves are rarely affected.

Symptoms.—It usually affects only the chin and lower part of the face. The hairs are easy to epilate—a diagnostic difference from tinea barbae. They start as a papule, but soon become pustular. This condition is very persistent and hard to cure. Both the ringworms of the bearded region are very contagious.

SEBORRHEA CAPITAS

Definition.—Greasy condition of the scalp exists, due to over-activity of the sebaceous glands. When this secretion dries, it is known as "dandruff."

Symptoms.—It is a chronic skin disease of the sebaceous glands, due to excessive flow of sebum. The scalp is often affected, but it is never limited to this locality, and the condition spreads to the face especially at the hair line. It must not be confused with eczema. Seborrhea is oily, as a rule does not itch, and has a tendency to be slightly yellow in color; whereas eczema is moist and itches. It is not contagious.

EPITHELIOMA

Definition.—This is a malignant tumor, consisting of epithelial cells, primarily derived from the skin and mucous membranes. It is sometimes called "carcinoma," but dermatologists prefer the name "epithelioma" because it is composed of epithelial cells.

Symptoms.—It begins as a small tubercle of apparently benign character. It may start from a wart or pigmented mole which has been irritated. These break down and malignant cells proliferate, becoming more and more extensive. A special characteristic is the depressed center with distinctly rolled edge. There are two varieties: the basal cell composed of superficial epithelial cells; and the squamous cell, found in the deeper layers of the skin and connective tissues. When seen on the face, there is usually one lesion, the size and destruction of the skin dependent on the length of time it has existed. It is often produced by ill-fitting nosepieces on glasses. Chancer has some of the characteristics of epithelioma. Blood Wassermann and rolled edges with the length of the lesion existed will help to differentiate the diseases. Epithelioma is often found on the lip, as is also extragenital chancer.

XANTHELASMA PALPEBRARUM

Definition.—This is a skin disease attended with the formation of yellow growths, especially on the eyelids and their vicinity. It is without constitutional signs.

Symptoms.—It is usually found in women of middle life. The lesions begin as single, small patches, coalescing with a distinct yellow color and very little elevation. They are disfiguring but not injurious to the health.

LUPUS VULGARIS

Definition.—This is a true tuberculous condition of the skin and mucous membrane, with the formation of brownish nodules in the corium.

Symptoms.—It begins in early life, usually before the eighteenth year. The lesions have in them the tubercle bacillus. The most common seat is on the face, especially involving the region of the nose. They appear in various forms, according to characteristics, namely, round, disseminated, impetiginous, pustular and warty. The disease begins with reddish brown, deep indurated spots which spread subcutaneously, then break down and become ulcerated. The primary lesions are hard, and when a glass slide is pressed over them, they look like apple jelly. In fact, they are called "apple jelly nodules." Lupus vulgaris is not contagious but requires local and systemic treatment.

LUPUS ERYTHEMATOSUS

Definition.—This is a chronic non-tuberculous condition of the skin, marked by extreme redness with some scaling and keratotic plugs.

Symptoms.—It is usually situated on the nose and cheeks. It is sometimes called "butterfly disease," the nose being the body of the butterfly and the cheeks the wings. It is due to some digestive or intestinal upset. Lupus erythematosus is not tuberculous, but is caused by a toxin generated in the body. The characteristics are so pronounced, that, if once seen, cases can be easily diagnosed.

ACNE VULGARIS

Definition.—A chronic, inflammatory disease of the sebaceous glands is called acne vulgaris.

Symptoms.—This disease is so prevalent that there is little difficulty in recognizing it. It occurs between the ages of 16 and 24 years. Papules, comedones and some pustules are always present. There are two varieties: Acne vulgaris (common acne) and acne indurata. The latter is more deeply seated and there are fewer lesions. These deeply indurated spots often suppurate. Right here a word of warning should be sounded—acne, if not treated early and properly, will leave the patient with permanent scars.

HERPES SIMPLEX

Definition.—Galen, 200 years before the Christian era, defined this disease well as "the formation of small vesicles in clusters."

Symptoms.—It is usually encountered on the lips and called by the laity "cold sores." Several small vesicles occur with a slight edema. They often follow a cold, coryza or fever. It may occur on the eyebrow or eyelids and even the conjunctiva.

CHEILITIS

Definition.—This is a chronic, cracked and scaling condition of the lips.

Symptoms.—It is an inflammatory condition of one or both lips, with dry scales and formation of crusts. There are periods of improvement and then exascerbations. Sometimes, tongue and buccal membranes are attacked. It must be differentiated from chronic eczema. It is dry and scaly, whereas eczema is moist. In one variety, *cheilitis exfoliativa*, there is only scaling; in the other variety, *cheilitis glandularis*, there is a fatty degeneration of the glands of the lower lips with excessive secretion of mucus.

DERMATITIS VENENATA

Definition.—This is an inflammatory condition of the skin, due to contact with chemicals or vegetable irritants. It is usually applied to "poison ivy" or "poison oak."

Symptoms.—Poison ivy appears soon after exposure, usually on the face and hands, beginning as papules soon becoming vesicles. The eruption is confluent and spreads very rapidly. Spreading takes place by contact on the surface of the skin, also by deeper invasion of the lymphatics. There is considerable edema, especially of the face. The eyelids may be swollen so that the patient cannot see. The lips are swollen and the poison may even affect the buccal mucosa. A history of exposure will help make the diagnosis.

LEUKOPLAKIA

Definition.—"Leukoplakia buccallis" is a disease marked by the formation of white patches within the cheeks and on the tongue.

Symptoms.—There are flattened, abraded patches on the mucous surface of the mouth and tongue. They are white, beginning as separate lesions which coalesce after being present for some time. They are usually found in the mouth of those who smoke, and are known as "smoker's patches." This condition is not of syphilitic origin, but is a potential source of cancer.

PSORIASIS

Definition.—This is a skin disease of many varieties, characterized by the formation of dry-crusted lesions.

Symptoms.—It is frequently found in patients enjoying good health. It is of long duration and is worse in winter than in summer. There are white scales, which, when removed, reveal a red turgescent area. Psoriasis must not be confused with eczema. The first is always dry with white scales that do not itch, whereas the latter is moist and itches. It is often a generalized eruption, but is more prone to appear where surfaces are covered by clothing.

PEDICULOSIS CAPITIS

Definition.—This is a skin disease due to head lice.

Symptoms.—It is found principally in the hair of children. There are papules on the scalp, and perhaps some pustules due to scratching. The hair is a tangled mass, and the parasite can be demonstrated by combing the hair with a fine-toothed comb. The lesions are visible to the naked eye.

In closing, let me mention some observations in the practice of dermatology which I have gleaned from years of experience:

Don'ts

Don't prescribe for a skin condition, until you are sure of the diagnosis. If there is any doubt, use a mild, palliative remedy.

Don't use strong lotions or ointments, unless the condition is chronic and lesions need stimulation. Remember, "The mild power cures."

Don't bandage a skin lesion, unless the surface is excoriated and needs protection from extraneous matter. Let the skin breathe.

Don't prescribe calamin lotion, as every doctor uses this and the patients may call you the "Pink Doctor."

Don't fail to write for a medicine to be taken internally by the patient. A laxative is always a good treatment.

Don't fail to prescribe tonics for anemics and nerve medicines for the neurotics. Kind, attentive listening to symptoms helps here.

Don't forget to order starch baths for urticaria and acute itching of the skin, also for dusting on the body. Starch is the baby powder of our grandmothers.

Don't fail to note idiosyncrasies, habit of scratching and self-inflicted lesions. Remember, "If you scratch it, it won't get well."

Don't consider any statement or symptom trivial. "From the smallest acorn the mighty oak grows."

Don't let patients use strong soaps. Mild and neutral ones are best.

Don't allow washing with soap and water in cases of eczema. Use a bland oil.

Don't fail to recognize that pigmented moles, old warts and elevated growths are a potential cause of cancer of the skin.

(*Continued on page 27*)

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA
Editorial Office, 1718 M Street

EDITORIAL STAFF
Coursen B. Conklin, A.M., M.D., *Managing Editor*
Wallace M. Yater, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

WHAT IS THE ANSWER?

Twenty million people are bombarding Congress for $200 a month for all persons over 60 years of age; one-fifth of the entire populace of the country restlessly clamor for this action. These masses, plus even greater numbers, estimated to total 80 per cent of the population, are beginning to insist upon expert medical care at a price they can pay.

Sociologists and politicians concerned with creating schemes to satisfy the ominously growing appetite of social unrest are devising ways and means through legislation to toss this restless monster a "bone," gnawed bare of meat by administrative handlers. These schemers are well-meaning but without adequate knowledge. The American League for Social Security has built up a propagandized bill for state medicine disguised as health insurance, and this bill is ready to be submitted to Congress as well as to all State legislatures, backed by the whipped-up masses equalling in number those clamoring for the Townsend Act.

This bill provides for politically controlled boards in every state, with myriads of sub-boards, county boards, city boards, investigators, the like of which would make the administrative force of prohibition appear infantile. The personnel of these boards need have no medical training. They need only to be subservient to a patron saint who desires reelection. They have no interest in the patient—less in the physician—interest only in holding their jobs.

This bill places all contributed funds in politically controlled state treasuries, to be invested as seen fit by politically appointed commissions. In event loss results from investment of these funds, as has happened many times to similarly controlled educational funds, the physicians for whom these funds were intended will be like thousands of school teachers, who have seen a similar result. This bill permits a politically appointed commission of lay people to use these funds to erect hospitals, clinics, laboratories, et al., as they may see fit. A choicer piece of "grafting," "pork-barrel" machinery was never devised. This bill provides everything for administration first, and what is left is for the physician. Nowhere are standards of service considered nor restricted to the ethical profession. The benefits are limited as to time. If illness is not turned off within defined limits like a water faucet, the patient and physician are both where they started. No arrangement is made to determine how a farmer, an apple picker, a threshing laborer, a taxicab driver and millions of others can contribute or benefit, yet the bill is propagandized to care for all those who can not pay for their health protection under existing conditions of lowered or insecure incomes.

Guided by a tireless corps of propagandists, letters and telegrams are pouring into Washington by the mailbagsfull from all over the country, demanding passage of this bill. This thing is alive and powerfully insidious. A joker is included stipulating compulsion for certain groups but making it possible for all with incomes up to $5,000 per year to use it if they so desire. Where would your practice be if you no longer had this class of private patients?

A compromise bill made over like a misbegotten patchwork quilt cut full of holes may be the result of politicians' activities if they feel that the voting masses, who hold their political futures in the palms of their hands, the same hands which write these demands to them, insist on some kind of action.

The innocent man stood behind jail bars protesting to the jailor, "You can't do this to me, you can't lock me up." "But you are locked up," replied the jailor.

Protest not that this thing can not be done to you—that your services still belong to you. It can be done to you! The masses cry "do something!" That cry is being met by schemes begotten in the minds of well-meaning sociologists and ill-intentioned radicals who have proposed something. They charge the medical fraternity with proposing nothing. It is too late to close the barn doors after the horse is gone. Shall topheavy politically controlled administration be the "tail" that wags the "dog"? Shall the farmer with patronage pull, or the machinist and the soda-fountain clerk with a relative who knows a "patron" saint in some state legislature keep your books, set your fees, disallow your claims, misinterpret your red-tape reports and boss your night calls? Shall a state political boss decide that 10 additional free clinics are needed in your community, that new hospitals need to be contracted for, that more laboratories need be created with funds contributed to buy your services at a figure set by that same boss and his henchmen?

An indictment is out against the profession, brought in by a jury of sociologists and radicals claiming their action to be in the interests of masses who demand that something be done for them. That indictment cannot be met with lethargic protests of facts. Fire must be met with fire! Dynamic action and word must be carried to the masses who only ask that somebody do something. That somebody should be the profession itself, the only somebody who actually has something besides good intentions and "well-meaningness" to offer. The masses can be rallied to a proposition that is fundamentally right. The Medical Society of the District of Columbia is the logical organization in the Nation that can "do something" now and join together the profession and the needful majority of the Nation's voters by a proper plan. The Medical Society of the District of Columbia could show the rest of the Nation how to do something in medical economic security. It has every advantage to do so. No other medical society in the country can do the job at the doorstep of Congress, with the press to aid and abet it and to broadcast its message. Will the Medical Society of the District of Columbia evolve a plan to offset unsound impending legislation? Will it demonstrate that the medical profession in any community can handle adequately its own medical economic security problem?

HOW THE PROFESSION IN DETROIT HANDLES ITS MEDICAL ECONOMIC PROBLEMS*

The following editorial, under the caption "The Public Be Served," is reprinted from the Detroit Medical News of December 31, 1934.

"Considered from the socio-economic viewpoint there are now four classes of people (in Detroit at least), not three as we formerly believed. The following brief resumé will give you an outline of how we in Detroit service all classes.

1. The Poor—Unemployed on Public Charity (Welfare).

These people obtain medical treatment through the doctor's charity in his private office or in the dispensary or government channels (the FERA). For the past year, the last mentioned service has been delivered in Detroit through the agency of the "Medical-Dental Bureau, F.E.R.A." This Bureau is located in the Wayne County Medical Society Building and uses the Society telephone. The patient in this classification goes to his own doctor; the doctor telephones to the Bureau which gives him first a verbal authorization for necessary emergency service. A written authorization is later mailed to the doctor who records on it the nature of the service and returns it to the Bureau for payment. A scale of fees was agreed upon by the professions of Michigan and the State E.R.A. in December, 1933. The Bureau audits the voucher and, once a month, sends the accounts to the Wayne County Welfare Relief Commission and this office mails the check to the doctor. The professional policies are decided by a board composed of three physicians, three dentists, three nurses and three pharmacists, all of whom are appointed by the professional organization they represent.

2. The Unemployed Not on Public Charity.

These people have little or no income, many are too proud to ask assistance, many receive assistance from friends or relatives, children, etc., many eke out an existence by doing odd jobs or by obtaining an occasional day or two of work. In the main, these people deserve every consideration and a large measure of sympathy for having sufficient grit to "stand up and take it." The Wayne County Medical Society recognized the problem in 1930 and organized the "Medical Relief Bureau" to supply necessary medical treatment. Later the Dental Society organized the "Dental Aid" to serve the same group. Recently these two Bureaus were consolidated into one setup located in the Wayne County Medical Society Building and the combined offices are now known as the "Medical

---

* This article is published in anticipation of a plan to be proposed at the business meeting of the Society in February by the Committee on Medical Economics.

Aid-Dental Aid." The two professional organizations asked their members to volunteer to serve this group and approximately 1,000 physicians and about 600 dentists answered the call. Patients apply at the office and are always referred to their own family doctor—the one of their choice—provided he will serve the case; if not, the patient selects one of the volunteers. The service is made available immediately and with no red tape. Very frequently the patient insists upon paying a small amount to the doctor. This may be as little as fifty cents, but it helps the patient's morale if the doctor accepts it, even though he would prefer to give the service gratis. Again, the agency is located in the Wayne County Medical Society Building.

3. The Employed of Small Means.

This group is served by the Medical Service Bureau of the Wayne County Medical Society. The purpose of the Bureau is to provide to employed people of modest income complete medical service when they need it and on terms they can afford to pay.

The Bureau is under the financial control of the Board of Trustees of the Wayne County Medical Society. Its operating policies are decided by an advisory board consisting of representatives of the Wayne County Medical Society, the Detroit District Dental Society, the Detroit Branch of the Michigan Nurses Association, the Detroit Retail Druggists Association and the executives of the Detroit hospitals. The Bureau is located in the Wayne County Medical Society Building. The Bureau commenced operations in February, 1934.

The Bureau is a demonstration in coöperation. Five professional groups (physicians, dentists, hospitals, nurses and pharmacists) are working together to provide good medical service for the employed worker of small means.

When a patient applies to the Bureau for assistance in obtaining medical service, he is given an interview and a fair plan is agreed upon whereby he makes small payments each pay-day. These sums are based solely upon the patient's ability to pay, and his total indebtedness is so adjusted that the period of payment will not exceed one year. He is then referred to the doctor of his choice. The doctor diagnoses the illness and when necessary obtains the services of hospitals, specialists, etc., through the Bureau. The service is given at once when the patient needs it. No red tape. All who supply service send bills to the Bureau which coördinates them and charges same to the patient. Out of his weekly wages, the patient pays to the Bureau the small amount agreed upon which is distributed to the coöperating professional units. The Bureau retains ten per cent of moneys collected as a service fee. No interest, fees or assessments are paid by the patient.

4. The Well-to-Do.

These people have the dollars and should have the sense (pardon the pun) to go to a doctor when health service is required, and to pay him a fair fee for such service. They have no difficulty in purchasing their requirements and do not constitute an economic problem for organized medicine. No Bureau or Agency should become a part of the patient-physician relationship with this group.

This article is an attempt to tell a long story in a short space and details have, of necessity, been omitted. Your attention is directed to the facts: (1) that the Wayne County Medical Society has established, in its building, a center where health problems of all problem groups are solved by the professional people who give the service; (2) that the traditional patient-doctor relationship is not violated; (3) that the patient always has free choice of doctor; (4) that the operating policies of each department are vested entirely in the professions; (5) that the idea of service to the patient is the keynote of all departments and that he always receives service immediately, without red tape."

RESOLUTION WITH STATEMENT OF SOCIETY'S ATTITUDE TOWARD MEDICAL CARE FOR INDIGENT SICK*†

Whereas, The Medical Society of the District of Columbia is keenly desirous that adequate medical care be available for all classes of citizens in the District of Columbia, not only in the present emergency but at all times; and

Whereas, The Medical Society of the District of Columbia, as a representative organization of the local medical profession and a constituent body of the American Medical Association, should be looked to by all civic groups and officials for guidance and critical judgment in medical matters; and

Whereas, It is obviously desirable and expedient at this time that an authoritative statement of the position of the Medical Society of the District of Columbia with respect to the provision of medical care for the indigent sick be available for the guidance of its own members and the information of all individuals or agencies officially or unofficially concerned with this problem; therefore, be it

Resolved, That the following statement be incorporated as a part of this resolution and spread upon the minutes of the Society; and that the President be hereby empowered and directed to send, on the authority of the Medical Society of the District of Columbia, copies of this resolution and statement to any individual, committee, group, organization or other agency, official or unofficial, whose activities are directly or indirectly concerned with the furnishing of medical care to the indigent sick and that, in the judgment of the President, it is deemed expedient to approach.

In making public a statement of its position on the subject of medical care for the indigent, the Medical Society of the District of Columbia is continuing its policy of active interest in all matters affecting the public health, of giving out to the public from time to time authoritative information on various phases of this all-important subject, and of hearty coöperation with all official or unofficial agencies concerned with this problem. This policy has been evidenced in many ways. The Medical Society has given at its auditorium and under its auspices, courses of public lectures on various health topics. The demonstration of the local tuberculosis situation by its Committee on Public Health has now happily resulted in the initiation of steps by those in authority that may be confidently expected to effect a great improvement in the near future. It has taken effective steps to prevent any development in Washington of a pernicious practice of medicine by hospitals, and through its endorsement and guidance the movement for group hospitalization is now not only well started locally but properly safeguarded against the tendencies along this line that have so seriously hampered its satisfactory functioning in many other jurisdictions. At the present time it is giving serious thought to and studying, through appropriate committees, methods of procedure and formulae for setting up an agency to secure for those deserving and needing such a service an opportunity to budget the costs of medical care along lines that, in other cities, have already been found to work out most satisfactorily for all parties concerned, without requiring extra expense even for interest charges. It is also now engaged in exploring every avenue of approach to securing, with proper safeguards, the right of an employee, injured in industry and insured under the Workmen's Compensation Laws, to be treated by a physician of his own choice.

---

* It appears that certain social agencies were not clear concerning the local profession's position. The above is for the information of all concerned.

† Adopted by the Society, January 2, 1935.

Considering now the subject matter of this statement, it may be pointed out that, with respect to his ability to secure medical care for himself or his dependents by the ordinary expedient of purchase, the citizen falls into one of 3 groups:

(a) The group whose members are financially able to meet the exigencies of any given medical situation from current funds, immediately or within a reasonable time.

(b) The group whose members are financially able to defray the reasonable and, considered from the viewpoint of their financial status, appropriate costs of medical care provided means are available to spread the payments over a sufficient length of time.

(c) The group whose members are without resources to meet such demands at all.

The first of these groups need not concern us here.

Concerning the second group it needs to be pointedly called to the attention of all concerned that permitting such individuals to become objects of medical charity is not only unfair to all parties in interest, but contrary to the best interests of society as a whole. Such a course causes the individual to lose self-respect and engenders in him erroneous and anti-social habits of thought concerning the mutual obligations between him and the society of which he is a part; causes the physician a pecuniary loss that he can ill afford and, therefore, quite naturally promotes endless friction and misunderstanding between him and the agencies responsible for any such inequitable situation; and, finally, can only occur when officials responsible for the disbursement of funds derived from involuntary, public taxation, or voluntary, private, philanthropical contributions are untrue to their moral and legal obligation to see that such trust funds are used economically and appropriately only for the benefit of the truly indigent. The recent action of the Executive Committee of the Community Chest in authorizing and financially supporting a Central Admitting Bureau is a significant and effective forward step in preventing abuse of medical charity and one that has the unqualified endorsement and enthusiastic support of the Medical Society. It is now most desirable that all other agencies concerned in this problem should afford the utmost need of coöperation by establishing a liaison with the Central Admitting Bureau in the spirit of burying personal differences of opinion in support of a mechanism for social service that is now an accomplished fact.

This brings us to a consideration of the problem of furnishing medical care to the sick who are truly indigent. It is upon this point that the Medical Society particularly wishes to make its position clear and unequivocal. It believes the following considerations to be basic and fundamental to any understanding of this problem.

1. According to the statistics given by the Report of the Committee on the Costs of Medical Care, the medical profession of the United States, made up of approximately 140,000 physicians, contributes services to the sick poor valued at $1,000,000 daily. According to these figures, since approximately 1 per cent of the physicians in the country as a whole are practicing in the District of Columbia, the contribution of free service of the local profession would amount to between $5,000 and $10,000 daily, an annual contribution equalling or exceeding the annual budget of the Community Chest.

2. Since the Community Chest is obviously unable to remunerate physicians for their services to the sick poor, and since the contribution of the District Government for this purpose is largely represented by 10 Physicians to the Poor at a salary of $1 per day less 10 per cent, it is obvious that medical care of the indigent is left practically entirely to the charity of the local profession.

3. The District Government and the Community Chest provide food, shelter and hospital and administrative facilities, for furnishing which everyone concerned is remunerated on a commercial basis. The absolutely essential item in medical care, without which none of the facilities mentioned is of any practical value, namely the trained skill and judgment of the physician, is accepted from him without any effort being made for his remuneration, and should, therefore, be looked upon by the agencies concerned as a purely charitable contribution on his part. This charity involves not only the gift of the skilled services of the physician, but in making the gift there is involved time and transportation, the first a potential and the second an actual out-of-pocket cost.

4. It follows that any agency, governmental or private, that is concerning itself in planning for medical care for indigents is preparing, to the extent that its contemplated activities include the services of physicians, to give away that which it does not possess and for which it does not and apparently cannot pay.

From these considerations, and from every viewpoint of equity and reason it should be obvious that, until such time as such agencies are in a position to purchase the services of physicians at mutually agreeable rates and thus acquire the right to some dictation concerning methods for their disposal, the medical profession itself is entitled to determine the entire set of circumstances under which it is willing to furnish medical care to the indigent. To hold otherwise is but to contend that charity should have its origin in duress rather than in conscience.

The Medical Society, therefore, as one of the representative organizations of the local profession, by the adoption of this resolution and statement, gives notice that any commitments for the disposal of free medical services arrived at by individuals, groups, committees, or any agencies, official or unofficial, to whose deliberations it has not been a party, are without binding effect upon it or its members and, in any event, remain entirely subject to its approval or disapproval.

In taking this stand the Medical Society of the District of Columbia is not unmindful of the legitimate rights of governmental health departments to conserve the public health through the control of communicable disease, nor does it question that, in the interest of all, the Government has the right to regulate the practice of medicine as it sees fit, although it would seem obvious that a sensible preliminary to such proposed regulations should be consultation with and advice from the medical profession itself. It does contend that the skill and judgment of the physician are the sole commodities through the sale of which he makes his living and that they cannot be taken from him by any process of law, or placed at the disposal of any individual or group without his consent. Its only object in making this statement is to promote an accord between all the agencies responsible for furnishing medical care to the indigent calculated to secure coöperation and understanding rather than friction and discord in order that no deserving individual in need of such care shall go without it. To this end it pledges its every endeavor.

TRANSACTIONS OF THE SOCIETY

Stated Meeting, January 2, 1935

The following were duly elected to membership:

Active Members

Walter Atkinson, 1604 Twentieth Street, N. W.
Thomas Bradley, 1601 Twenty-eighth Street, N. W.
Charles Powell Cake, 1726 Eye Street, N. W.
Harry Filmore Dowling, 2111 Bancroft Place, N. W.
Harold Rivers Downey, 1740 M Street, N. W.
Bernard Semple French, 1726 M Street, N. W.
Mervin Wilbur Glover, 1029 Vermont Avenue, N. W.
Henry Beall Gwynn, 1514 Thirtieth Street, N. W.
Robert Samuel Jacobs, Westchester Apartments
Samuel Luber, 1801 Eye Street, N. W.
Michael J. McInerney, 5420 Connecticut Avenue, N. W.
Arthur James Mourot, 1801 Eye Street, N. W.
Walter Kendall Myers, 2111 Bancroft Place, N. W.
Edward Matthew O'Brien, 900 Seventeenth Street, N. W.
Owen Samuel Parrett, 722 Maple Avenue, Takoma Park, Md.
Benjamin Rones, 1610 Eye Street, N. W.
Amanda Louise Stoughton, 1835 Eye Street, N. W.
James Conrad Waters, 417 Eighth Street, S. E.
George Louis Weller, Jr., 1801 Eye Street, N. W.

Associate Members

Sara Elizabeth Branham, National Institute of Health
Martin Donohue Delaney, Alexandria, Va.
Watson William Eldridge, Jr., Saint Elizabeths Hospital
Alexander Simon, Saint Elizabeths Hospital

Applicants for membership to be voted on in March, 1935:

For Active Membership

Hill Carter, University of Virginia—1930
Joseph Dessoff, Georgetown University—1930
James Lewald, Washington University, St. Louis—1911
John Joseph Lynch, Georgetown University—1925
Norman Clifford Shoemaker, University of Nebraska—1933

Dropped, pursuant to provisions of Chapter IV, Article V, of the Constitution:

Active Members

Henry K. Craig
Hugo Einstein
Melville B. Fischer
Ovid C. Foote
Edward Barton Jones
Richard J. Kemp
Albert S. Maddox
John E. G. McLain
Henry T. Miller
Benjamin L. Naiman
S. Logan Owens

Associate Members

H. R. Hummer
Michael D'Arcy Magee
Frances Petty Manship
Frank H. Shultz

Group Hospitalization, Inc.

Representatives

Pursuant to resolution adopted by the Society, January 17, 1934, as follows:

"*Resolved*, That annually at the stated meeting of the Society in January, the members who shall represent the Society in the membership of Group Hospitalization, Inc., shall be nominated by the President for election by the Society; provided that other nominations may be made from the floor; and provided further, that for the current year. . . ."

the following were duly nominated by President A. B. Bennett and elected by the Society:

W. M. Ballinger
Joseph B. Bogan
Caryl Burbank
Tomas Cajigas
William W. Chase
Arthur C. Christie
C. W. Culver
William T. Gill, Jr.
R. Arthur Hooe
LeRoy W. Hyde
Richard A. Kearny
Leon A. Martel
Russell McNitt
Albert E. Pagan
Philip O. Pelland
Alec A. Preece
F. A. Reuter
J. R. Verbrycke, Jr.

FIVE PHYSICIANS OBTAIN LIFE MEMBERSHIP

Through a constitutional provision, members of the Society on the active roster for 40 years become life members* and are no longer liable for dues or assessments. January of each year the Annals prints additions to this Honor Roll. In the following tabulation the seniority number, and date of entrance to membership are given:

154	Samuel Evans Watkins	April 5, 1894
162	Sterling Ruffin	April 11, 1894
165	Harry Theodore Harding	October 11, 1894
166	Aurelius Rives Shands	October 18, 1894
167	Edward Emery Morse	October 28, 1894

These physicians are warmly congratulated and the hope is expressed that they will be on the rolls for many subsequent years.

In recent correspondence pertaining to life membership are noted the following:

"January 4, 1935.
Dear Doctor Conklin:

It is a pleasure to receive notification from you that I have become a Life Member in the Medical Society of the District of Columbia. Although I have been handicapped during the past 12 years on account of my health I have always considered it an honor and privilege to be a member of the Society and shall continue to do so.

With best wishes for a successful future of the Society and many thanks for your courtesy, I am,

Sincerely yours,
(Signed) Harry T. Harding"

"January 4, 1935.
My dear Dr. Conklin:

I am reminded of the flight of time by your letter of the 2d instant, wherein I am informed that I have been a member of the Medical Society of the District of Columbia for forty years. In reply I beg to thank you for your very courteous letter and to say I hope to be a member of the Society for some years to come.

Wishing you personally and the Society in general a year of great prosperity, I have the honor to be,

Yours very sincerely,
(Signed) Edward E. Morse"

SOCIETIES WITH LIMITED MEMBERSHIP

American College of Surgeons

Sectional Meeting, Washington, D. C.

A sectional meeting of the American College of Surgeons for the states of Delaware, Maryland, Virginia, West Virginia and the District of Columbia will be held in Washington, D. C., on April 11 and 12, 1935. The program will include surgical clinics at the various hospitals, hospital conferences and medical motion pictures directed by Dr. Malcolm T. MacEachern, Associate Director of the American College of Surgeons, during the day, and, in the evenings a scientific session on April 11 and a public health community meeting on April 12. A special section will be devoted to eye, ear, nose and throat surgery. The Local Committee on Arrangements consists of Drs. R. M. LeComte, Chairman; E. W. Titus, Secretary; W. B. Marbury, Counselor, with Drs. H. W. Lawson and Charles S. White, who handled the last sectional meeting held in Washington, as members, together with the chairmen of the various subcommittees, as follows:

D. B. Moffett, *Registration and Information*
James A. Cahill, Jr., *Program*
Daniel L. Borden, *Clinics*
Huron W. Lawson, *Community Health Meeting*
William P. Herbst, *Speaking Arrangements*
Frederick A. Reuter, *Publicity and Education*
F. C. Schreiber, *Finance and Audits*
Harry A. Bishop, Major, M.C., U.S.A., *Governmental Medical Services*

The medical profession in general as well as the Fellows of the American College of Surgeons in the states noted, are invited to attend, and invitations to the Community Health Meeting will be sent to 10,000 of the lay residents of the District of Columbia.

Medical Arts Society

December 13, 1934, University Club:

"Injection of Alcohol as Treatment for Hypertrophy of the Nasal Mucous Membrane." William Carey Meloy, M.D.

The attendance included 26 physicians.

January 10, 1935, University Club:

"The Preservation and Conservation of Sight in Childhood." Frank D. Costenbader, M.D.

---

* There are now 40 Life Members.

PAN AMERICAN MEDICAL ASSOCIATION

A meeting of the Washington, D. C., Chapter was held on Sunday, December 2, 1934, at the home of Dr. James Alexander Lyon, near Rockville, Maryland.

The program:

1. "A Review of the Known Causes of Heart Disease." Paul Dudley White, M.D., of Boston.

   (In the address newer remedies were mentioned and an outline for further researches presented.)

2. "Contributions of Latin Americans to the Subject of Heart Disease." Howard B. Sprague, M.D., of Boston.

The desirability of coöperation, with possible organization of the cardiologists of the different Latin American Republics was suggested by Dr. Paul White and warmly seconded by Dr. J. Salgado Salgar, of Colombia. This would be pursued through an exchange of views and a comparing of data by heart specialists in the different countries to the end that light may be thrown on obscure phases of the problem. Among the guests was J. R. Risquez, Director of the National Institute of Health of Venezuela, who is trying to organize a similar Pan American enterprise for the bacteriological study of some diseases.

HENRI DEBAYLE, M.D., *President*
GENERAL ROBERT U. PATTERSON, *Vice President*
A. A. MOLL, M.D., *Secretary*

WASHINGTON HEART ASSOCIATION

The Washington Heart Association, Washington, D. C., is an affiliated member of the American Heart Association. Among the many advantages of membership is the receiving monthly of "Modern Concepts of Cardiovascular Disease," a pamphlet of much value to the physician. Such subjects as "Drugs Used in the Treatment of Cardiovascular Diseases: I. Epinephrine and Ephedrine Groups; II. Caffeine, Camphor, and Strychnine Groups," Soma Weiss, M.D.; "The Course and Outcome of Cases of Subacute Bacterial Endocarditis," Emanuel Libman, M.D.; "A Practical Discussion of Diseases Affecting the Blood Vessels of the Extremities," Bayard T. Horton, M.D., appeared during 1934. There are five cardiac clinics in Washington at the following hospitals: Central Dispensary and Emergency Hospital, Children's Hospital, Georgetown University Hospital Dispensary, Providence Hospital and Garfield Hospital.

The officers of the Washington Heart Association are: Drs. Sterling Ruffln, President; Wallace M. Yater, Vice President; James W. Esler, Secretary; Mr. Samuel H. Kauffman, Treasurer; Mrs. Wade Martin, Executive Secretary.

GEORGE WASHINGTON UNIVERSITY MEDICAL SOCIETY

On Saturday, December 15, 1934, at the George Washington University School of Medicine, through arrangements made by Dr. F. A. Reuter, a Past President's Night was held. Ten-minute case reports, illustrated by slides and the exhibiting of patients afforded an interesting evening. The following former presidents were on the program:

A. B. Bennett, John A. Reed, F. A. Reuter, William Thornwall Davis, Daniel L. Borden, C. N. Chipman, Huron W. Lawson, Boyce R. Bolton, William T. Gill, Jr., E. W. Titus, Paul S. Putzki, Custis Lee Hall, F. A. Hornaday, William J. Mallory, Oscar B. Hunter, Coursen B. Conklin, Charles S. White, D. W. Prentiss.

Saturday, January 19, 1935, the program included an address:

"Objectives in Medical Education." Milton C. Winternitz, M.D., Dean of Yale Medical School.

Buffet suppers follow the scientific program. Meeting nights: the third Saturday of each month. Members of the Medical Society of the District of Columbia are welcome guests.

The present officers of the George Washington University Medical Society are: W. Warren Sager, President; Benjamin Dean, Vice President; Robert M. Bolton, Secretary; Beveridge Miller, Treasurer.

LOUIS MACKALL MEDICAL SOCIETY

The program, Monday, January 14, 1935, at the Ambassador Hotel:

1. "Pyloric Obstruction." Wyrth P. Baker, M.D. Discussion: Edward A. Krause, M.D.
2. "Amidopyrine and Blood Dyscrasias." S. Ross Taggart, M.D. Discussion: Stuart O. Foster, M.D.
3. "What is the Central Admitting Bureau?" Marvin McDugald McLean, M.D.

PROGRAM, SOCIETY ACTIVITIES

Wednesday, January 30:

Joint meeting with the Section on Ophthalmology and Otolaryngology, R. S. Pendexter, M.D., chairman; Lyman B. Tibbets, M.D., Secretary.

"Problems Presented by Suppuration of the Petrosal Pyramid." Samuel Joseph Kopetzky, M.D., Professor of Otology, New York Polyclinic Medical School and Hospital, Director of Otolaryngology United Israel Zion Hospital.

Wednesday, February 6:

In addition to the Business Meeting, the Society will be fortunate in hearing again Professor Georges

Portmann, University of Bordeaux, France. Subject: "Syndrome of the Cranial Nerves."

Dr. Portmann illustrates his addresses with extemporaneous drawings on the blackboard, adding much of instructive value.

Wednesday, February 13:

Joint meeting with the Section on Neurology and Psychiatry, Roger S. Cohen, M.D., Chairman; Walter Freeman, M.D., Secretary.

1. "The Relation of the Frontal Lobes to Visceral Function." J. W. Watts, M.D., Philadelphia.
2. "Gastro-intestinal Function in the Neuroses." William M. Ballinger, M.D.
3. "Gastro-intestinal Disorders in the Psychoses." Alexander Simon, M.D.

Wednesday, February 20:

Joint meeting with the Washington Heart Association, Sterling Ruffin, M.D., President; James W. Esler, M.D., Secretary.

"Etiological Factors of Rheumatic Fever and Rheumatic Heart Disease." Lewis A. Conner, M.D., Past President of the American Heart Association and Editor of the American Heart Journal, now Professor of Clinical Medicine, Cornell University.

ANNUAL SCIENTIFIC ASSEMBLY

May 1 and 2

Guest Speakers

The scientific program, arranged under the direction of Dr. James W. Esler, is about complete. Among the out-of-town speakers will be included Dr. Soma Weiss, who is Associate Professor of Medicine, Harvard University Medical School, his subject, "Syncope." Dr. J. Shelton Horsley, of Richmond, Virginia, will present a review of his findings in the "Diagnosis and Treatment of Cancer of the Stomach."

Guests' Invitations

Dr. Charles Stanley White, Subchairman, is especially desirous of obtaining the names of out-of-town members of the profession to whom his committee would send letters with a notation of the member of the Society extending the invitation. It is hoped that the Society's members will early think of those whom they wish to invite and communicate with prospective guests either through the committee or by personal letter. The use of both means would be most appropriate.

Exhibits: Scientific and Technical

Dr. E. M. McPeak, in charge of exhibits, is establishing an innovation this year in extending an invitation to the hospitals to exhibit as units pathological specimens with clinical histories, therapeutic devices, or activities of any kind which would be of general interest. Individual members and guests are invited to participate according to past custom.

The technical exhibitors will, as usual, have booths in the Library. The space is rapidly being taken by commercial firms. This year with newer types of equipment and newer therapeutic products the instructive value will be much enhanced.

Luncheon and Banquet

The luncheon will be held at noon, May 1; the banquet on the evening of May 2, at the Mayflower Hotel. Dr. Preston Haynes, Subchairman of Entertainment, assures fine entertainment. The talent will be both professional and amateur.

PUBLIC INFORMATION

Radio and Press

The first four radio broadcasts of the Medical Society in 1935 were made with the coöperation of the Division of Life Saving and First Aid of the American Red Cross. These broadcasts were designed with the view to giving instructions in first aid in emergency. The Committee on Public Information especially enjoyed the assistance rendered in this campaign by Commander W. E. Longfellow, Divisional Director of the Red Cross, and by Mr. Benjamin H. Gammidge, Director of Life Saving and First Aid of the District of Columbia Chapter of the Red Cross. The first two broadcasts were in the nature of dramatic presentations, the remainder in the form of trialogs. This division of the Red Cross is responsible for the most up-to-date practical first aid instruction given in the United States. It includes the firemen and police of the District of Columbia and nurses in the local training schools.

Recent radio programs follow:

December 13: "Faulty Posture." Custis Lee Hall, M.D.
December 18: "Rabbit Fever or Tularemia." The Old Family Doctor.
December 20: "Dietary Dilemmas." W. M. Ballinger, M.D.
December 27: "Treachery in a Friend—Those Electrical Fixtures." The Old Family Doctor.
January 3: "Mr. & Mrs. Dee Cee Become 'First Aid' Conscious."
January 8: "Facing the Perils of Being Safe at Home."
January 15: "First Aid Armor for the Dangers of City Streets."
January 22: "Breathing for the Breathless."
January 29: "Care of the School Child's Teeth." B. Edwin Erikson, D.D.S., District of Columbia Dental Society.

Frequent releases have been made to the press concerning the Medical Society's activities respecting public matters. Articles of scientific value to the public have appeared from time to time, excerpted from the Annals, reported from the regular scientific meetings, and also prepared especially for publication. A series, "Precautions to Prevent Taking Cold," prepared by the committee, appeared in a local paper. These articles were written in understandable every-day English and carried the caption "Authorized by the Medical Society of the District of Columbia," without naming the author of the articles.

The Speakers' Bureau is now functioning under the supervision of Dr. Don S. Knowlton. The Bureau has a large list of speakers from all branches represented in the Society and is prepared to furnish speakers on medical topics upon invitation of any organization making request. This Bureau is an integral part of the Committee on Public Information.

NEWLY APPOINTED COMMITTEES

Traffic Committee

Anent certain traffic difficulties particularly as experienced by physicians, the Society voted to appoint a special Traffic Committee. Drs. R. Arthur Hooe, Chairman; Francis R. Hagner and P. Edward Larkin, recently appointed, are now coöperating with the Automobile Associations and individual members to the end that the physician in making his calls will be confronted with less difficulties in making progress through traffic and in obtaining parking space. It will be remembered that the late Dr. E. G. Seibert for a number of years did masterful work in assisting the membership with their automobile problems. Success of the present effort seems assured.

Legislative Committee

One of the most important functions of any committee of the Society is that of making contact with legislators, protecting the Society's interests before the Commissioners and the Congress. The present situation demands much activity of the Legislative Committee. Until recently a subcommittee of the Executive Committee took care of legislation. By recent action of the Society, upon recommendation of the Executive Committee chairman, a special committee from the Society has been appointed by the President to take these responsibilities. The appointees are as follows:

Preston A. McLendon, Chairman
John Minor
H. D. Shapiro

Any member wishing to make special recommendations should note this personnel and make early contact with them.

NEW DISTRICT OF COLUMBIA APPOINTMENT

Council, Southern Medical Association

Dr. William Thornwall Davis has been appointed a member of the Council of the Southern Medical Association to succeed Dr. William Gerry Morgan, who, having served the constitutional limit, was not eligible for reappointment. Dr. Davis' term of office is 5 years. Dr. H. Marshall Taylor of Jacksonville, Florida, newly elected President, recently announced other council representations as follows: Dr. Edgar G. Ballenger, Atlanta, Georgia, and Dr. Harvey S. Thatcher, Little Rock, Arkansas.

A SPECIAL COURSE IN OTOLARYNGOLOGY

Professor Georges Portmann, of Bordeaux, France, will give, beginning Monday, February 4, continuing through Friday, February 8, 1935, lectures at Providence Hospital on such subjects as "Acute Otitis," "Ethmoid, Pathology, Anatomy, and Surgery," "Cancer of the Larynx," etc. Operations to illustrate his methods will be performed on such patients as are available. Dr. James A. Flynn, 1511 Rhode Island Avenue, N. W., is in charge of arrangements.

FIVE STATE POSTGRADUATE CLINIC

DISTRICT OF COLUMBIA DENTAL SOCIETY HOST

March 18–20, 1935, Wardman Park Hotel

In this meeting of dentists, members of the Medical Society of the District of Columbia have been asked to participate on Wednesday, March 20, 1935, 2 to 5 P.M. in the furnishing of material for a "Table Clinic." We quote from a recent communication from Dr. Philip Robin, chairman:

"Should any of the men in the medical profession care to give a table clinic which they think might be of interest to the dental profession, they are more than welcome, and should correspond with me for necessary arrangements. The names of these men must be submitted to me before the last week of this month, so that their names will appear in the bulletin."

DERMATOLOGICAL CONDITIONS ENCOUNTERED BY THE OTOLARYNGOLOGIST AND OPHTHALMOLOGIST

(*Continued from page 17*)

Don't hesitate to send a difficult skin case to the dermatologist. A correct diagnosis and treatment may work wonders.

PRESCRIPTIONS

ACNE VULGARIS

Sulphuris precipitatis	15.00
Pulv. tragacanthae	1.00
Aquae camphorae q.s.ad	120.00

M.S.—Apply night and morning after washing face thoroughly. "Shake well."

RINGWORM OF THE FEET—"ATHLETE'S FOOT"

Acidi salicylici	5.00
Spts. vini rect. q.s.ad	100.00

M.S.—Apply to feet every night for 3 nights only. Dust powdered boric acid on feet and stockings night and morning.

IMPETIGO CONTAGIOSA

Ungt. hydrargyri ammoniati (2–5 per cent)	30.00

M.S.—Wash parts thoroughly, removing all scabs; then apply ointment several times a day.

TINEA BARBAE

Hydrargyri bichloridi	0.1
Acidi picrici	1.00
Spts. vini rect. q.s.ad	100.00

M.S.—Apply once a day after thoroughly washing the face with hot water and soap. "Poison."

RINGWORM OF THE SCALP

Acidi salicylici	1.00
Thymoli	0.5
Tinct. iodi	8.00
Spts. vini rect. q.s.ad	30.00

M.S.—Paint on at night.

CHRONIC ECZEMA

Phenolis	0.5
Ungt. zinici oxidi q.s.ad	30.00

M.S.—Apply once a day; remove with olive oil.

PEDICULOSIS

Tinct. larkspur	60.00

M.S.—Shampoo scalp thoroughly, then apply morning and night.

PSORIASIS

Hydr. ammoniati	2.00
Acidi salicylici	2.00
Hydr. chlor. mitis	4.00
Ungt. aquae rosae q.s.ad	30.00

M.S.—Soap scales with olive oil and wash with soap and water, then apply ointment vigorously.

SEBORRHEA

Sulphuris precip	4.00
Acidi salicylici	2.00
Ungt. aquae rosae q.s.ad	30.00

M.S.—Apply every night, rubbing in well.

James Francis Coupal, M.D., (1884–1935).—Dr. Coupal, who served as medical officer in the United States Army, reaching the grade of Colonel, and who had the distinction of being attending physician to the household of President Coolidge, died after a brief illness on January 3, 1935. He received his degree from Tufts Medical College in 1909, entering the United States Army as Lieutentant, Medical Corps. While curator of the Army Medical Museum he always manifested much interest in scientific medicine in Washington. Particularly did he cooperate with those desiring use of his facilities in the field of pathology. Since 1929 he was engaged in private practice, his active membership in the Medical Society of the District of Columbia dating from January 13, 1930.

Colonel Frank H. Edmonds, (1873–1934), founder of Edmonds, Opticians, occupying a position of prominence among those engaged in the art of optical dispensing, died September 20, 1934, at Atlantic City, N. J. He had been an associate member of the Society since May 9, 1932. He established his optical business in Washington, 1899. During the War he was with the A. E. F. in command of official optical dispensing with the rank of Major, reaching the grade of Colonel before the cessation of hostilities. He was buried in Arlington National Cemetery with full military honors. Colonel Edmonds is survived by Mrs. Edmonds and their daughter, Mrs. Dwight L. Harris.

BRITISH MEDICAL ASSOCIATION

Expected Visit of Members to Washington

The annual meeting of this Association is to be held in Melbourne, Australia, the coming summer. It is expected that members from England and other countries, going to the meeting, will visit Washington during August. The Medical Society of the District of Columbia will be pleased to welcome fellow-practitioners from abroad. Although the meeting is some months distant the President has appointed a committee to act at the time of the visit on behalf of the Society. It is constituted of the following members:

Harry A. Fowler, Chairman
Coursen B. Conklin
George B. Trible
Henry C. Macatee
P. S. Constantinople

Other local medical bodies and members of the profession will want to entertain. The committee will serve admirably in coördinating all local effort.

DR. WILMER HONORED

American Legion Dinner

The Augustus P. Gardner Post No. 18, The American Legion, sponsored a homecoming dinner on the evening of January 24, 1935, in honor of Dr. William Holland Wilmer. Members of the Medical Society were invited to attend. Dr. Wilmer is a charter member of this Post. The dinner was under the general direction of the Surgeon General of the United States Army, Robert U. Patterson.

DR. WILLIAM H. WILMER

Addresses Monthly Medical Meeting

Army Medical Center

Dr. Wilmer, who has returned to Washington to establish his practice after his years of activity in connection with Wilmer Ophthalmological Institute, Johns Hopkins University, gave an address, "The Early Development of Aviation Medicine in the United States," on Monday evening, January 21, 1935. The meeting was well attended by medical officers of the regular and reserve sections of the United States Army. These meetings, held monthly through the courtesy of the Surgeon General, are open to all physicians and dentists, members of their respective societies in the District of Columbia.

Dr. Wilmer has the grade of Brigadier General in the United States Army.

MEDICAL SOCIETIES WITH LIMITED MEMBERSHIP†

Washington, D. C.

SOCIETY	PRESIDENT	SECRETARY	REGULAR MEETING
Baltimore-Washington Dermatological	Joseph Gately, Balto.	J. V. Kennedy	3d Thursday
Clinical Club	George R. Huffman	H. S. Bernton	1st Tuesday
Clinico-Pathological	Prentiss Willson	Lee McCarthy	1st and 3d Tuesdays
George Washington University	W. Warren Sager	Robert M. Bolton	3d Saturday
Georgetown Clinical	Grafton Tyler Brown	J. J. McHale	3d Tuesday
Hippocrates-Galen	Benjamin F. Weems	Leroy L. Sawyer	1st Thursday
International Medical Club	George B. Trible	P. S. Constantinople	On Call
Jacobi	David Davis	S. A. Machlis	2d Monday
Kober	E. E. Hadley	Howard L. Smith	3d Monday
Mackall	W. W. Chase	R. W. Wilkinson	2d Monday
Medical Arts	James W. Esler	Alec A. Preece	2d Thursday
Medical Review Club	A. J. Chenery	Robert M. Bolton	4th Friday
Osler	John Minor	E. Kirby Smith	3d Monday
Pan American (D. C. Branch)	Henri de Bayle	A. A. Moll	Every 3d month
Virginia, Maryland, and District of Columbia	R. Arthur Hooe	A. M. MacDonald	Semiannually
Washington Academy of Surgery	Harry H. Kerr	Alec Horwitz	2d Friday, bimonthly
Washington Gynecological	Leon A. Martel	H. P. Ramsey	4th Saturday
Washington Heart*	Sterling Ruffin	James W. Esler	Monthly
Washington Medical and Surgical	Joseph F. Elward	J. Duerson Stout	4th Monday
Washington Society of Nervous and Mental Diseases	S. A. Silk	W. G. Cushard	3d Thursday
Washington Society of Pathologists	J. G. Pasternack	V. H. Cornell	1st Saturday
Women's Medical	Elizabeth Kittredge	Alma Jane Speer	1st Tuesday

---

* Permanent office with lay secretary, Mrs. Wade Martin, 1315 Nineteenth Street, N. W.

† Acknowledgment is made of the assistance rendered by Dr. Joseph F. Elward in arranging this original tabulation.

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV FEBRUARY, 1935 NUMBER 2

EVIPAL SOLUBLE—A UNIQUE ANESTHETIC FOR INTRAVENOUS USE*

X. CHARLES SURACI, M.D.

Washington

An important chapter in the history of medicine pertains to the use of anesthetic agents. The continued search for a drug that will act as a perfect anesthetic is proof enough that as yet such a drug has not been found. Nevertheless, as time passes, constant endeavor in this branch of medicine is being rewarded by useful discoveries.

The purpose of this paper is to bring to the attention of the surgical profession some experiences in the use of a newer member of the anesthetic group, Evipal Soluble.

For short surgical operations requiring a general anesthetic and for selected major operations the introduction of this drug has made available to us a comparatively safe and inexpensive agent as well as a method so compact as to have decided advantages over other forms of anesthesia. Because of the almost immediate induction of anesthesia and the notable lack of unpleasant after-effects, Evipal Soluble is rapidly gaining favor with surgeons.

In my opinion, Evipal Soluble represents another and more handy means of avoiding that great bugbear of general anesthesia, "psychic trauma." As is well known this varies with individuals, but to a greater or less extent is present in nearly all operative cases and is unavoidable with the classical inhalation anesthetics. Fear has a decided harmful effect on the economy of the individual. This is particularly true in operative cases, where in preparation for operation a patient dreads the anesthetic and knife. Sleep, on the other hand, insulates and protects the nervous system, and is an excellent recuperative; and so long as it lasts it relieves the patient of all nervous tension. The rapid inducement of sleep, therefore, serves to eliminate fear and works to neutralize the injury inflicted by the operative procedure.

PHYSICAL AND PHYSIOLOGIC PROPERTIES

Evipal Soluble (also known as cyclural sodium and abroad as Evipan Sodium) is the sodium salt of N-methyl-cyclohexenyl-methyl-malonyl-urea. It is a white, crystalline, deliquescent salt readily soluble in water. Solutions of Evipal Soluble are stable for a relatively short period, and should, therefore, not be used after several hours. The striking features of Evipal Soluble are: (1) Relative margin of safety, the lethal dose in experimental animals being four times the minimum narcotic dose, giving a therapeutic index of 4; (2) rapidity of inducing anesthesia with a notable absence of any excitement period; (3) swift decomposition in the body with a recovery period marked by almost complete absence of any unpleasant reactions as measured by the patients' remarks. Most of the patients relate how well they feel afterwards, some express a desire for food, others engage in normal activities very soon after the operation. Being a non-volatile substance, Evipal Soluble must be defined as uncontrollable, but detoxication proceeds so rapidly that in the ebbing of effect it closely approaches controllable anesthesia. The drug is decomposed by the liver, as experiment has shown that animals with damaged livers awaken more slowly. The kidneys are not involved, nor is the drug destroyed in the blood. Locally it has no harmful effect on tissues or blood.

---

* From the Department of Anesthesia, Providence Hospital.

EFFECTS ON BLOOD CHEMISTRY

It has been found by experimental workers that changes in blood chemistry are negligible. Where some cases showed a slight rise in CO_2 combining power, blood sugar, blood chlorides, or nonprotein nitrogen, almost as many showed a slight drop. There is a minimum inhibition of general metabolism, about equal to that of gas anesthesia.

EFFECTS ON THE CIRCULATION

Intravenous injection in most cases produces a preliminary drop in blood pressure comparable to that seen in normal sleep. The pulse rate is usually raised. Both return to normal shortly afterward. In overdosage the heart continues to beat after respiration has ceased. This factor is extremely favorable.

EFFECTS ON RESPIRATION

Evipal causes a reduction in the frequency of respiration, but not at the expense of ventilation, since simultaneous deepening of respiratory excursions ensues. Death from an overdose results from respiratory failure.

EXCRETION

Only traces of the drug have been found in the urine of animals and patients, most of it being completely disintegrated in the body. No manifestations of tolerance have been exhibited, nor has any injury to the organism been observed.

DOSAGE

The determination of dosage depends mainly on the weight and general condition of the patient. Age must be given serious consideration, as well as the type of operation contemplated. I have found that young people and alcoholics tolerate relatively larger doses. A satisfactory dosage scheme is to allow 0.06 cc. of the 10 per cent solution for every pound of body weight. Thus, a patient weighing 120 pounds will receive (120 × 0.06), 7.2 cc., and a child of 65 pounds (65 × 0.06), 3.9 cc. A total amount of 10 cc., the maximum dose, should not be exceeded at any single injection. However, where longer anesthesia has been necessary, we have employed the supplemental administration of a fractional dose.

TECHNIC OF ADMINISTRATION

The method of administration is by the intravenous route. Shortly before use, 1 gram of the drug (the content of an individual ampule) is dissolved in 10 cc. of sterile distilled water supplied with the powder, giving a 10 per cent solution. The usual preoperative injection of morphine and atropine sulphate may be carried out prior to the anesthetic, although not absolutely necessary nor generally advised. The patient, as a rule, is brought to the operating room and placed on the table. Pulse and blood pressure readings are recorded, and the arm at the bend of the elbow cleaned and prepared with tincture of iodine and alcohol. The 10 cc. of 10 per cent solution, drawn into the syringe with a fine needle attached, is held ready. A vein is selected at the bend of the elbow, and prior to the injection the patient is instructed to count aloud and slowly.

As the injection is started the patient begins to count; as the count approaches 20, it becomes slower or stops. In a few seconds the patient takes a deep yawning breath or sighs, the jaw relaxes, and narcosis is complete. I have noticed that if the entire dose is given in 25 to 45 seconds, the patient is fully and deeply anesthetized within 1 minute. If the rate of injection is slower, as was the procedure in our earlier cases, it may be several minutes before full anesthesia is established. Due to its rapid decomposition, Evipal Soluble may be administered so slowly that deep anesthesia never develops. We had one illustration of this. A patient, whose calculated dose was 10 cc. received slowly 4 cc. when the needle slipped out of the vein. Until the remainder of the dose was injected, he remained merely groggy for several minutes.

Duration of Anesthesia

Consciousness is usually abolished in 30 seconds. There is no preliminary excitement stage, and postoperative excitement is also rare. The expected period of anesthesia is from 15 to 20 minutes. Although not common practice, prolongation of the anesthetic period with repeated fractional doses have been resorted to by me and is favorably reported upon by others.

Contraindications

Theoretically, at least, serious liver disorders preclude the use of this drug, because it is disintegrated chiefly in the liver. Seriously ill, dehydrated and cachectic patients naturally should be dealt with individually and with caution. For certain nose and throat procedures the drug is contraindicated since the swallowing reflex disappears.

Dangers and Antidotes

There is no known specific antidote for Evipal Solution. In respiratory embarrassment one has recourse to coramine intravenously and carbon dioxide by inhalation. Both serve as antagonists of Evipal Soluble in emergency cases. With suitable dosage and proper administration in most cases no greater drop in systolic pressure than from 10 to 20 mm. occurs. Usually the pulse rate is increased. However, both blood pressure and pulse rate soon return to normal. In rare cases of unusual drop of blood pressure, return to normal may be hastened by hypodermic administration of ephedrine.

Personal Observations

In a series of 50 personally conducted cases unconsciousness was usually preceded by a yawn or sigh. Breathing became regular, rhythmic and deep. Soon the jaw dropped and, in most cases, complete relaxation followed. At this point it was the custom to introduce an airway to maintain clear breathing. If this is done the color of the skin remains unchanged.

I attempted a determination of blood counts and urinalysis in some cases with normal preoperative findings, but since no significant differences were noted postoperatively, other than those following general anesthetics, I abandoned determinations for the entire group.

Two-thirds of the patients received no preliminary medication. The remainder received morphine sulphate, $\frac{1}{6}$ grain, and atropine sulphate, $\frac{1}{150}$ grain. One patient received morphine, $\frac{1}{4}$ grain, who had a marked drop in blood pressure and cessation of respiration for one minute.

The youngest patient was a boy of 7 years with a fractured radius; a man of 64 years, who came for extraction of teeth, was the oldest patient. Twenty-five per cent of the patients were negroes. Fifty per cent of the patients were males.

The average induction period was $28\frac{1}{2}$ seconds, the shortest being 15 seconds, and the longest 58 seconds.

In this series the duration of anesthesia averaged $15\frac{1}{2}$ minutes. The shortest period was 3 minutes; the longest, 52 minutes, with repeated fractional doses. This was a colored man, aged 23 years, of 150 pounds, for whom the calculated dose was 9 cc., and who had fractures of both legs. Twenty-two minutes after the operative procedure (frames, ice tongs and traction), he was up on a backrest relating how well he felt, what a good sound nap he had had, and "please, couldn't he now have something to eat?" This patient had no untoward symptoms at any time.

The respiratory rate was slowed in all cases, but coincidentally became regular, rhythmic and deeper. Two male patients had temporary cessation of respiration, one for 38 seconds. This man, aged 50 years, weighing 130 pounds, received a dose of 7 cc. The blood pressure was reduced from 120 mm. systolic to 100 mm. and recovered to 110 mm. in 10 minutes. There was no change in pulse rate. Breathing was stimulated by fulguration of chancroids, for which he was anesthetized. He felt well enough to leave the hospital one-half hour after the procedure. His sleep totalled 8 minutes. He had no pre-operative medication. The other patient had cessation of respiration for approximately 1 minute, 2 minutes after the injection. This man, aged 62 years, weighing 180 pounds, received a dose of 10 cc., with morphine sulphate $\frac{1}{4}$ grain and atropine sulphate, 150 grain, 1 hour before operation. He had the greatest drop of blood pressure recorded in the series, from 140 mm. systolic to 40 mm. systolic. His color was good throughout. The pulse was at first accelerated 30 beats per minute but reached the pre-anesthetic rate in 10 minutes. The blood pressure was slower to respond but reached the pre-anesthetic level in 55 minutes, Ephedrine sulphate was employed for stimulation. No other untoward complications arose, and the patient left the hospital the next morning apparently no worse for the experience. The pulse rate in most cases was accelerated. The average increase in rate was 31 beats per minute. Four cases showed a slight reduction, the average reduction being 10 beats per minute. One case showed no change.

In this series there were 2 cases in which the dose was repeated. In one, a nurse with acute meningitis, the drug was repeated daily for 5 days and again on the seventh day. In the other, a maximum dose of 10 cc. was given at weekly intervals for 3 doses. The first time, it was given for setting multiple fractures of the mandible in a burly colored male, whom it was impossible to anesthetize with nitrous oxide on the previous day because of wildness during the excitement period. The attempt was given up in favor of Evipal Soluble. With this he was completely anesthetized in 23 seconds with absolutely no difficulty. There was no excitement period, and he remained anesthetized for 20 minutes, time enough to wire the fragments in place before he began to react partially. Awakening was gradual, uneventful and pleasant. The patient replied coherently to questioning 10 minutes later, voluntarily turning on his side and feeling quite at ease. In neither case were there any undesirable by-effects noted.

In 2 cases Evipal Soluble was used as a hypnotic prior to gas anesthesia. In both cases there was no excitement period, and the amount of general anesthesia necessary was apparently decreased.

One patient of the entire series, the very first, had persistent nausea and vomiting for 16 hours. I believe, however, that this was due to repeated doses of morphine that she had received and not to the Evipal. Several of the patients were operated upon with a full stomach, one after a full recent heavy dinner, with no nausea or vomiting occurring postoperatively.

Only one of the patients had the slightest generalized quivering. All had complete amnesia of the surgical procedure. Most remembered the last number they counted. Two, on awakening, resumed counting from where they left off; one counted to 130 after beginning again at 19, the last number counted on going to sleep 8 minutes before. It was impossible to stop her from counting by any suggestion. This was the only patient of this series having any postoperative excitation; between counts she would sob and cry and deride us for being amused by her actions.

In most cases recovery was very rapid and uneventful. Several of the ambulatory patients felt well enough to leave for home one-half hour after the surgical procedure.

It is interesting to note that 3 of the patients were members of the medical profession, and their remarks are impressive. One healthy, robust, practicing physician, 62 years of age, weighing 187 pounds, received a dose of 10 cc. After 13 minutes of cystoscopic examination and ureteral catheterization, his first remark on regaining consciousness was, "Well, when are you going to start?" When the urologist stated that he was finished, the physician-patient said, "What an anesthetic! The only thing I felt was the needle prick in my arm."

The second physician-patient, chief of the medical service in one of our penal institutions, aged 60 years, weighing 164 pounds, received a dose of 9 cc. with pre-operative medication of morphine sulphate, $\frac{1}{6}$ grain, and atropine sulphate, $\frac{1}{150}$ grain. The operation was fulguration of a small bladder tumor, thought to be possibly malignant. After 14 minutes of operative procedure he slowly began to react uneventfully, and praised the anesthetic highly as compared to others he had received previously for the same procedure. And when later he was taken to a Baltimore Hospital for consultation he was very much disappointed to learn he was not to have Evipal for the cystoscopic examination there.

The third professional patient was a nurse, the wife of a young physician, suffering with acute meningitis. It was necessary to make daily spinal taps for drainage and therapeutic injections of antiserum. She had two previous taps under local anesthesia and with each succeeding procedure became more obstreperous. Evipal Soluble was resorted to daily for 5 consecutive doses, and again on the seventh day. The praise that the physician and the patient gave the procedure was gratifying, and I had the personal satisfaction of allaying pain simply, harmlessly, and for a short period (average 10 minutes) in a personal family friend. It was all the more impressive because the patient had come to fear the procedure so much that she would become almost hysterical as soon as she saw her physician enter her room. Evipal Soluble changed this mental state. Her physician termed it a "life saver." Today, 8 months later, the patient is in the best of health, and apparently none the worse for her meningitis or the Evipal Soluble injections.

DIAGNOSES AND INCIDENCE

Abscessed teeth and pyorrhea	Full mouth extractions	4
Abscess of breast	Incision and drainage	1
Acute appendicitis	Appendectomy	1
Cancerous polyp of bladder	Cystoscopy and fulguration	1
Cellulitis of forearm	Incision and drainage	1
Carbuncle of back	Excision and packing	1
Carbuncle of neck	Excision and packing	4
Chancroids of penis	Fulguration	2
Dislocation of thumb	Reduction	1
Fracture of femur	Reduction and cast	2
Fracture of mandible	Wiring of fragments	2
Fracture of radius (Colles')	Reduction and cast	4
Fracture of tibia and fibula	Reduction and cast	1
Fracture of tibia and femur	Ice tongs, frames and traction	1
Endocervicitis (chronic)	Cauterization of cervix	1
External hemorrhoids	Excision	1
Hunner's ulcer of bladder	Cystoscopy and fulguration	1
Infection of finger	Incision and drainage	1
Infection of finger (osteomyelitis)	Amputation	1
Infection of toenail	Evulsion	1
Ischiorectal abscess	Incision and drainage	1
Acute meningitis	Lumbar tap and injection of antiserum	6
Osteomyelitis (metacarpal)	Incision and drainage	1
Osteomyelitis (jaw)	Incision and drainage	3
Polyp of bladder neck	Cystoscopy and fulguration	1
Vaginismus, uterine retroversion and prolapse	Pelvic examination	1
Ureteral stone	Cystoscopy and ureteral catheterization	2
Ureteral stricture	Ureteral catheterization and cystoscopy	1
Slipped epiphysis	Manipulation and cast	1
Suppurative adenitis	Incision and drainage	1

CONCLUSIONS

1. Evipal Soluble, the sodium salt of N-methyl-cyclohexenyl-methyl-barbituric acid, is suitable for anesthesia by intravenous administration because of its solubility, prompt decomposition and absence of deleterious effects on the general bodily economy.

2. Morphine and atropine may be given as premedication, although they are not generally advised because they tend to have a cumulative depressive action on respiration and prolong the narcosis. If they are not given the salivation that is common to general anesthetics is not observed.

3. A good scheme of dosage of Evipal Soluble is 0.06 cc. of 10 per cent solution for every pound of body weight. The condition of the patient and age should always serve as a guide. Patients past middle life, even though robust, have a shorter induction time, a more profound narcosis and a longer reaction time.

4. The rate of administration should not be swift, but a moderately rapid injection is advantageous for maximum effect. My experience proved good when the injection took less than 1 minute.

5. Complete general anesthesia for short surgical procedures is the rule. The prime use of Evipal Soluble is for short general anesthesia, and it serves this field excellently. In prolonged

cases there is no contraindication to supplementary fractional injections.

6. Carbon dioxide inhalations and the administration of Coramine act as the best known antagonists of Evipal Soluble, as in all barbiturate narcoses.

7. Ephedrine sulphate should be considered for controlling undue falls in blood pressure.

8. The average duration of effect is from 15 to 20 minutes of surgical anesthesia and from 5 to 10 minutes of further hypnosis.

9. The equipment for its administration is inexpensive. Evipal Soluble has been administered in my series in the operating room, in the out-patient department, in dental and physician's offices, and at home.

10. Since Evipal Soluble produces narcosis with true anesthesia, only one who is familiar with its administration and qualified to recognize the signs and symptoms of anesthesia, as well as capable of assuming full responsibility through his experience in anesthetic methods, should be entrusted with its administration.

Obesity Treatment by Diet, Thyroid and Dinitrophenol. Result on 106 Outpatients.—Summary. The methods used in treating 106 unselected obese patients in the outpatient clinic were analyzed, with reference to the effects of diet alone (100 cases), thyroid (51) and dinitrophenol (23).....

1. Diet alone will take off an average of 15 pounds in $3\frac{1}{2}$ months and, therefore, should be the first therapeutic procedure in the treatment of obesity.

2. When dieting fails to get results, either thyroid or dinitrophenol appears to be an effective adjunct.

3. As an adjunct to diet, dinitrophenol is at least as effective as thyroid and, in patients with normal basal metabolism, possibly superior.

4. Thyroid given immediately with the beginning of diet caused no better weight loss than when it was given only after loss on diet had stopped.

5. Dietary control was necessary to achieving results with dinitrophenol, as it was to getting results with thyroid. Furthermore, reasoning from the thyroid results by analogy, it would seem that it is worth while removing as many pounds as possible on diet alone before exhibiting the dinitrophenol—this on the assumption that with any drug which is not compensating a physiological deficiency, the less given, the better for the ultimate health of the patient.

6. It should be emphasized that neither thyroid nor dinitrophenol should be used indiscriminately by patients unguided or under the direction of physicians inexperienced with their use.—*Extract from article by Leona M. Bayer, M.D., and H. Gray, M.D., American Journal of the Medical Sciences, January, 1935, p. 90.*

GASTRIC SYPHILIS*†

Frank Lee Biscoe, M.D.

Veterans' Administration Hospital, Hines, Illinois

Syphilis is probably the oldest disease known to mankind and probably more has been written about syphilis than any other single disease. Every physician, surgeon and specialist is confronted with this disease in his practice. It is most evident, therefore, that a good knowledge of syphilis is essential. Philippe Albert says: "To write the history of syphilis is, so to speak, to trace that of mankind."

Captain P. Dabry, French Counsul of Hang Keou, China, published in 1863 a very complete work on China from the standpoint of medicine. Captain Dabry discovered and translated documents of Emperor Hoang-Ty. The documents date back nearly 5,000 years, give a reasonable idea of syphilis and indicate that it was a very ancient disease at that time.

The disease that spread over Europe during the latter part of the fifteenth century, following the return of Columbus from America, is believed by some to have been syphilis. However, it is for the individual historian to deduce his own conclusions as to the identity of diseases which have appeared down through the ages.

One of the earliest writers on this subject was Andral, and important contributions were made by Chiari, who pointed out the direct invasion of the stomach, and the indirect where other organs, notably the liver, were involved, and also that gumma always begins in the submucosa and extends from this layer to other coats of the stomach.

Fritz Schaudinn and Erich Hoffmann, in 1905, demonstrated the Spirocheta pallida as being the cause of syphilis, and Schaudinn and Metchinkoff contributed the first steps in the conquest of syphilis. Wassermann, in 1906, pointed out the hemolytic diagnosis of syphilis, and Paul Erlich first tried salvarsan in 1910.

---

* Read before the Society, November 14, 1934.

† Published with the permission of the Medical Director of the Veterans Administration, who assumes no responsibility for the opinions expressed or the conclusions drawn by the writer.

There were 220 cases of gastric syphilis reported from reliable sources up to 1930.* There were 17 cases reported from 1931 to 1932 inclusive. These were cases in which the lesion was demonstrated.

In England gastric syphilis is unusually rare. In France and Austria it is more common than in Germany.

The following table taken from the records of Edward Hines, Jr. Hospital covers the entire period from January 1, 1921, to May 1, 1934. This is a general hospital with a capacity of 1,750 beds.

Total number of cases of syphilis	1,454
Number of cases of gastric syphilis	8

This figure represents an incidence between 0.5 and 0.6 per cent. Some of these cases were re-admissions. Similar figures may be observed in reports from other clinics.

Full appreciation of gastric syphilis has occurred only in recent years through publication of articles by Carman, Downes, Eusterman, O'Leary, Einhorn, LeWald, Myer, Smithies, Morgan, and others.

According to Gmelin, the late E. Fraenkel during more than 4 years' service as pathologist to one of the largest hospitals in Germany saw only 4 cases of syphilis of the stomach. In 10,000 necropsies at this hospital (Hamburg-Eppendorf) not a single instance of gastric syphilis was found. Turnbull, in 3,000 postmortem examinations at the London Hospital, failed to encounter any specific gastric lesion, except perhaps in 1 instance. Symmers, at Bellevue Hospital, New York City, in a study based upon 4,880 autopsies, found among 314 syphilitics only 1 case of gastric involvement of a specific nature. During a period of 6 years, in approximately 5,000 consecutive autopsies done at Cook County Hospital, Chicago, not a single case of syphilitic involvement of the stomach was encountered.

Dr. W. H. Myer (Kwartin and Heyd), of the department of roentgenology, New York Postgraduate School and Hospital, stated that of about 18,000 gastro-intestinal roentgen-ray examinations he could be sure of the roentgenologic diagnosis of syphilis of the stomach in only 5 cases.

The records of Edward Hines, Jr. Hospital, Hines, Illinois, established in 1921, show that only 1 case of gastric syphilis was recognized by the roentgenologist. Out of 2,000 autopsies, from July 1924, to October 31, 1932, not 1 case was recognized by the pathologist. Also, not 1 case was recognized by surgeons at the time of operation. A diagnosis of gastric syphilis was made microscopically in 1 case, in which a large ulcer was removed from the lesser curvature of the stomach.

Gastric syphilis is rarely recognized by surgeons at the time of operation. Sections of tissue from the stomach may show plasma cells, lymphocytes, eosinophilic leukocytes and multinuclear cells, and yet these structures may be found in other lesions. There may be simple gastritis, syphilitic ulcer, gumma or tumor formation, or syphilitic stenosis. Small-cell infiltration of the stomach wall, or coalescence of syphilitic foci forming a tumor mass may be found. Linitis plastica is believed by some authorities to be a later stage of syphilitic fibrosis; however, most authorities classify this condition as small-cell carcinoma.

Thus, it will be seen that the diagnosis is difficult to make, and some will insist that the Spirocheta pallida be demonstrated in the stomach before an absolute diagnosis may be definitely established. This has been done only by McNee and by Warthin, who have reported successful demonstrations. A positive Wassermann test is an aid in diagnosis; however, a negative Wassermann test does not disprove the diagnosis. A permanent gain in weight and strength after anti-luetic treatment and improvement in the deformity of the stomach, as shown by X-ray pictures, are significant factors in the diagnosis.

The great difficulty in diagnosis is differentiating between carcinoma and gastric syphilis. We must, of course, consider ulcer, in which case, even though there is marked pyloric obstruction, there will be decided improvement after bed-rest and ulcer management, except in cases of ulcer of long standing, in which there is permanent, partial pyloric obstruction from formation of cicatricial tissue, and in such a case the patient's only hope for relief is, of course, gastro-enterostomy. Linitis plastica is an insidious disease occurring usually between 40 and 60 years and characterized by anorexia, occasional vomiting and anemia. There may be pain. The X-ray picture shows a small, contracted stomach. There is usually absence of free hydrochloric acid.

---

* Nelson Medical Research Bureau, Report to Author, August 28, 1933.

Carcinoma shows progressive loss of weight, a decreasing amount of free hydrochloric acid and later often total absence, and frequently the presence of lactic acid in the stomach contents, continuous epigastric pain, vomiting if there is pyloric obstruction, and deformity of the stomach, as shown by X-ray pictures, which does not improve. Gastric syphilis shows a changing acidity in the gastric content at different times, and frequently there is achylia gastrica. Usually there is low free hydrochloric acid. The epigastric pain is not constant, and there may be vomiting if the pyloric obstruction is marked. The deformity of the stomach as seen on X-ray films usually improves after anti-luetic treatment.

The treatment consists of the use of neoarsphenamine and mercury, and small frequent feedings at first, followed by a mixed diet. The X-ray pictures should be repeated at intervals. Surgical interference depends upon the degree of improvement.

CONCLUSIONS

An early diagnosis should be made whenever possible and anti-luetic treatment should be instituted at once.

If there is severe pyloric obstruction surgical treatment is, of course, indicated in most cases.

Except in cases in which the pylorus is practically closed, surgical treatment should not be resorted to until after anti-luetic treatment has been given without improvement, as shown by repeated X-ray films, loss of weight and continued anemia. Many cases of supposed carcinoma of the stomach have been treated surgically, only to have the surgeon find later that the patient does not improve satisfactorily until after anti-luetic treatment has been given. However, it is believed, in view of the preponderance of malignancy as compared to gastric syphilis, that surgical treatment should be instituted when there is decided doubt as to the diagnosis. Resection is probably more satisfactory than gastro-enterostomy.

Report of Cases

The following 8 cases have been described in detail for record, many X-ray films have been made, and a great deal of laboratory work has been done, but it is possible to give only the bare details in this discussion. The diagnoses were made on the basis of X-ray examinations, serologic tests and response to anti-luetic therapy.

Case 1: A white man, aged 37 years, was admitted for treatment of peptic ulcer. He was bedfast. His weight was only 79 pounds. There was almost complete pyloric obstruction. The blood Wassermann was 100 per cent, the Kahn 4 plus, the spinal fluid negative. Free HCl on admission was 0 to 24, later 10 to 22. The first x-ray film showed a very large, 5-hour residue and a moderate residue in the 48-hour film. There was marked deformity of the pylorus. The patient was hospitalized 3 times. He gained 57 pounds and was discharged symptom-free. (Figures 1 and 2.)

Case 2: A white man, aged 37 years, was admitted for treatment of peptic ulcer, which was bleeding. The blood Wassermann was 100 per cent, the Kahn 4 plus, the spinal fluid Wassermann 100 per cent. Free HCl was 0 to 12. A penetrating ulcer and mass on the lesser curvature of the stomach was removed because of repeated hemorrhages. The patient gained 13 pounds prior to operation. He was discharged greatly improved.

Case 3: A colored man, aged 40 years, was admitted for treatment of carcinoma of the stomach. His blood Wassermann was 100 per cent, the Kahn 3 plus. There was no free HCl. A deformity of the pylorus was demonstrated. He gained 16 pounds and was discharged symptom-free.

Case 4: A colored man, aged 44 years, was admitted for treatment of appendicitis. His blood Wassermann was 100 per cent, the Kahn 4 plus, the spinal fluid Wassermann negative. Free HCl was 0 to 16. A marked defect in the region of the pylorus was demonstrated. He gained 30 pounds and was discharged symptom-free.

Case 5: A white man, aged 41 years, was admitted for treatment for cancer of the stomach. His blood Wassermann was 100 per cent, the spinal fluid Wassermann negative. There was no free HCl. A marked deformity of the pylorus and a moderate 5-hour gastric residue were demonstrated. He gained 14 pounds and was discharged symptom-free.

Case 6: A colored man, aged 35 years, was admitted for treatment of neuropsychiatric condition, undetermined. His blood Wassermann was negative as was the spinal fluid Wassermann. He had had anti-luetic treatment. There was no free HCl at first, later 0 to 12. A prepyloric deformity was shown but no 5-hour gastric residue. He gained 12 pounds and was discharged symptom-free.

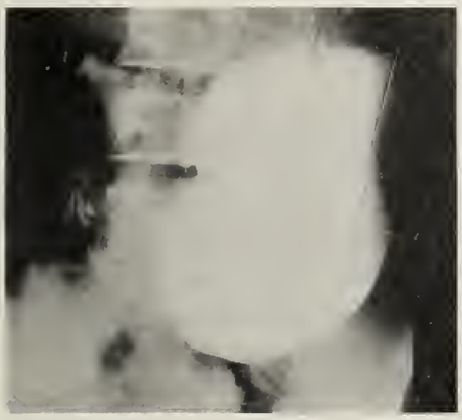


Fig. 1. Case 1. Marked Deformity of Pylorus

Large gastric residue on 3-, 6- and 24-hour films. Small residue on 48-hour film. Barium is not seen leaving pylorus.

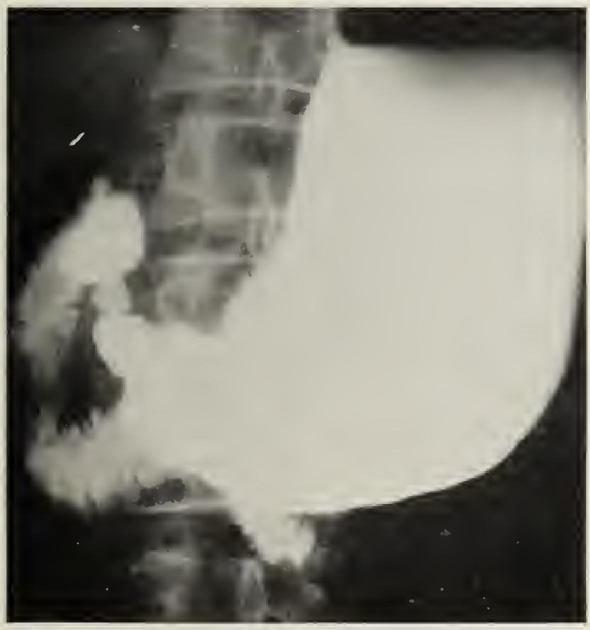


Fig. 2. Case 1. X-Ray Film 4 Years after That in Figure 1

Duodenal cap formed. Prepyloric region practically normal. No 5-hour gastric residue.

Case 7: A white man, aged 54 years, was admitted for treatment of peptic ulcer. His blood Wassermann was 100 per cent. There was no free HCl. X-ray examination showed a long, narrow stomach with a dilated duodenal cap, and a small 5-hour gastric residue. He gained 4 pounds and was discharged symptom-free.

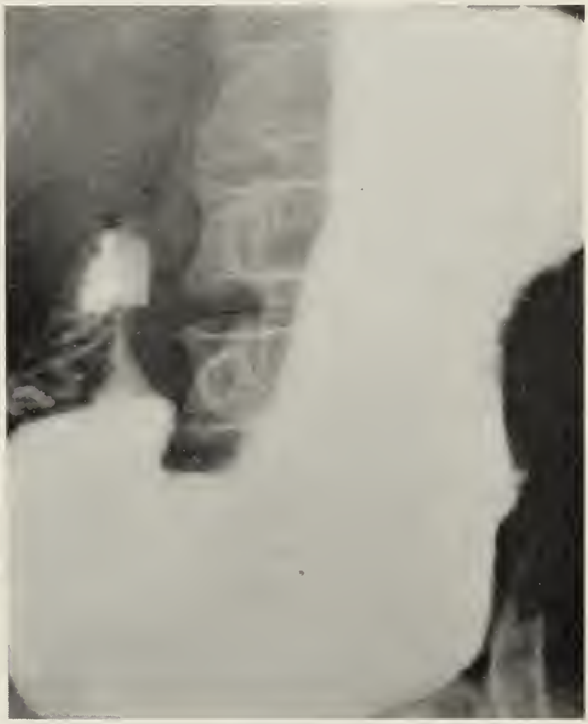


Fig. 3. Case 8. Marked Prepyloric Deformity

Moderate 5-hour gastric residue

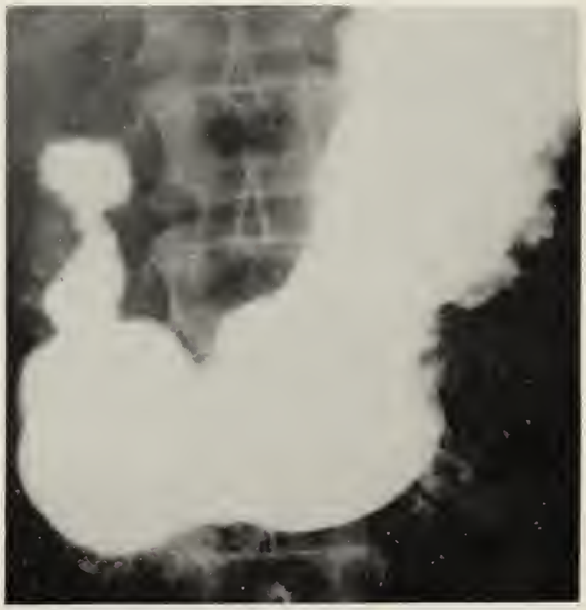


Fig. 4. Case 8. X-Ray Film 5 Months after That of Figure 3

Stomach normal in size. Prepyloric region practically normal. No 5-hour gastric residue.

Case 8: A white man, aged 59 years, was admitted for treatment for an intra-abdominal condition of undetermined nature, but possibly malignant. His blood Wassermann was 100 per cent, the Kahn 4 plus, the spinal fluid Wassermann negative. (Figures 3 and 4.) There was no free HCl. A marked pyloric deformity was demonstrated, with a large 5-hour gastric residue. The roentgenologist reported the stomach and duodenal cap normal on the last x-ray examination. He gained 35 pounds and was discharged symptom-free.

BIBLIOGRAPHY

Albert, P.: Memoirs sur les malad. vener., Bordeaux, 1836.

Andral, G.: Clinique Medicale, Paris, 1834, **2**, 201.

Chiari, H.: Ueber Magensyphilis. Festschr. r. Virchow, 1891, **2**, 295.

Dabry, P.: La Medicine chez les Chinois. Paris, H. Plon, 1863.

Gmelin, E.: Zur Diagnose der Magenlues. Beitr. z. klin. Chir., 1925, **134**, 597.

Kwartin, B., and Heyd, C. G.: Syphilitic Ulcerations of the Stomach. Arch. Surg., 1927, **14**, 566.

McNee, J. W.: Syphilis of the Stomach. Quart. J. Med., 1921–1922, **15**, 215.

Symmers, D.: Anatomic Lesions in Late Acquired Syphilis; A Study of 314 Cases Based on the Analysis of 4,880 Necropsies at Bellevue Hospital. J. A. M. A., 1916, **66**, 1,457.

Turnbull, H. M.: Discussion of G. Monod's Paper, Syphilis of the Stomach. Proc. Roy. Soc. Med., 1921–1922, **15**, 1.

Warthin, A. S.: New Pathology of Syphilis. Am. J. Syph., 1918, **2**, 425.

Bronchiectasis as a Source of Scarlet Fever Dissemination.— . . . Herewith is reported a case of scarlet fever where the source of the contagion was apparently a child (H. S.) who had suffered from bronchiectasis for many months and who seven weeks convalescent from scarlet fever harbored streptococcus hemolyticus in the pus from his lung. The patient (E. B.) who developed the disease was in intimate contact with this child. . . .

Although H. S. was probably a carrier of streptococcus hemolyticus continuously following his attack of scarlet fever, he was likely not a particularly dangerous source of dissemination of this organism so long as his bronchiectasis remained quiescent. However, as soon as cough, fever, and the raising of pus from the lung by postural drainage returned, it seems that he became as dangerous a source of dissemination of streptococcus hemolyticus infection as though he had discharging cervical glands or other of the more usual lesions harboring these organisms. It was indeed several days after the return of these symptoms of activity of the bronchiectasis that scarlet fever developed in E. B.

Medical literature contains only slight reference to bronchiectasis as a potential source of the dissemination of streptococcus hemolytic infections. This source appears particularly interesting in that it may remain latent during prolonged quiescent phases of bronchiectasis and later become a virulent source of dissemination if the bronchiectasis again becomes active. . . . —*Extract from article by Harvey Spencer, M.D., New England Journal of Medicine, January 31, 1935, p. 196.*

THE ELLIOTT HEAT TREATMENT IN PELVIC INFECTIONS*

Alec A. Preece, M.D.

Professor of Clinical Obstetrics, Georgetown University School of Medicine

I have brought this recent development in gynecology to the attention of the Society for several reasons. It is a quite well established procedure and is in use in many other large cities. Due to a publicity campaign on the part of the manufacturers, with articles appearing in many of the popular magazines, it is now becoming quite familiar to the public at large. Lastly, however, I am presenting it to you because, after spending most of last summer with one of the machines at Gallinger Municipal Hospital, I am thoroughly "sold" on its efficacy and feel quite strongly about its large sphere of usefulness in the treatment of all types of pelvic inflammatory disease.

The use of heat in the treatment of diseases of women dates back almost as far as medicine itself. Hippocrates prescribed the vaginal douche and wrote of its efficacy. Due to the Moslem law forbidding examination of women by male physicians, very little was accomplished in gynecology for many years. After this, however, heat again began to play an important part. In Germany, in the eighteenth century, its value was stressed when heated shot was poured into the vagina, thus serving to cause distention as well as prolonged heat application. In the early nineteenth century, intra-uterine douches were used until Emmet condemned them and again advocated the prolonged vaginal douche.

In 1924, Gellhorn brought out the principle that the mucous membrane of the vagina will stand a much higher temperature than the skin of the perineum and vulva. He advocated and popularized the prolonged bathtub douche which most of us prescribe today. He placed the patient in a bathtub, spread petrolatum on the skin around the vulva, and with a tube attached to the faucet, gave continuous douche of 115 to 120 degrees for 30 to 45 minutes.

---

* Read before the Society, November 14, 1934.

Following this came diathermy, which has been used with varying success by many observers. Reports from men who used this method when it first came out are quite enthusiastic. Cherry, in 1926, reported that 72 per cent of 100 cases were either cured or relieved. More recently, however, the reports have been rather pessimistic. Scheffey and Schmidt, for instance, in 1930, after a thorough trial, came to the conclusion that there is very little difference between treated and untreated cases. There was no difference in the length of hospitalization, in the amount of pain or in the size of the masses. Many of their patients had a severe reaction, and the treatment had to be discontinued. Incidentally, it is difficult to get an electrode to fit the vaginal orifice and to conform to the configuration of the vaginal mucous membrane. Also, there is no way of distending the vagina as there is with the Elliott machine.

Elliott, for many years, worked with the idea of an internal hot-water bottle in which the water would circulate and gradually increase in heat and somehow become distended. He devised a rubber bag of horseshoe shape, which fits into the vagina and when distended surrounds the cervix, the two points going up into the fornices on either side. By means of a motor, the water is circulated through the bag, and the pressure within the bag can be regulated and shows on a dial. The water is heated and is on thermostatic control, so that it can be set at a certain temperature, or, if turned up, the water gradually heats up half a degree per minute, until the desired temperature is reached. By this means, hot water, at a definite temperature with as much pressure as the patient will comfortably stand, is applied over a period of an hour. The temperature ranges up to 130 degrees and the pressure varies from 1 to 3 pounds depending on the amount of inflammatory involvement. The water can be maintained at a temperature that would burn the skin. The intense heat against the distended vaginal mucous membranes, the cervix, and the adjacent pelvic organs and parametrium, causes a marked increase in the circulation in that area to protect the tissues from burning. Holden has shown that a temperature of 130 degrees for 1 hour will produce a temperature 106 degrees in the bladder. This takes place without a general rise in body temperature, but there is usually quite a little perspiring. The heat causes a marked hyperemia in the pelvic tissues and a profuse discharge from the glands of the cervix. Observers taking daily smears from acute gonorrheal cases have found that this prolonged high temperature kills the organisms rapidly and that they disappear from the discharge in a few days. In 87 per cent of the cases there was an average leukocytosis of 17 per cent.

TECHNIC OF ADMINISTRATION

The treatment is given in a bed or on a table that is as comfortable as possible. The bladder and rectum should be empty. A speculum is inserted into the vagina and any secretions wiped away. Before the bag is inserted, the vagina and perineum and the bag itself are covered with vaseline and the outlet of the bag covered with cotton. The bag is held in place by a snugly fitting T binder. The temperature is started at about 115 degrees, and the pressure within the bag is usually about 1 pound to start with, depending upon the amount of inflammatory tissue in the pelvis. The thermostat is turned on so that the water heats up half a degree per minute and usually 120 degrees is enough for the first treatment. After about 15 minutes, there is relaxation of the tissues, so that more pressure can then be applied. The first treatment usually lasts 30 minutes, the second one 45 minutes and then an hour at a time, with increased pressure and temperature up to 130 degrees. Following the treatment the patient is usually quite relaxed and drowsy and she should be allowed to sleep for an hour.

RESULTS OF TREATMENT BY VARIOUS OBSERVERS

During the last 3 or 4 years the results reported by various investigators have been most enthusiastic. The largest series of cases has been reported by Holden of Bellevue, who has been using this treatment in all types of pelvic infections. To date, he has given some 15,000 treatments and is very enthusiastic. In the first 150 cases which he reported, all types of pelvic inflammatory disease were represented from the very acute to the very chronic cases. There were 8 cases of tubo-ovarian abscess in which the mass extended more than half way to the umbilicus. Of these, 1 was opened later from below, and the other 7 cleared up without drainage. There were 33 cases of pelvic abscesses, in 10 of which posterior colpotomy had been employed before the Elliott treatment was started. Of the other 23 cases in which treatment was continued despite fluctuation, only 3 had to be opened finally, and the other 20 underwent resolution. In cases of acute urethritis and cervicitis, the results were equally good. There were 31 cases of this type which were treated until there were 5 daily, consecutive negative slides. The extreme heat kills the organisms, and the marked activity of the glands of the cervix following treatment has a very beneficial effect. This author now always gives a series of treatments before operation, even in the chronic cases, and in many of them surgical treatment is not necessary. He has found that the ideal case is the acute one before there is organization of the exudate.

Counsellor, of the Mayo Clinic, reported a series of cases given the Elliott treatment and others in which it was used after operation. In the series with Elliott treatment alone there were 70 per cent good results and with operation plus Elliott treatment 100 per cent. Mackin reported 125 treated cases of which only 8 required operation. Graham, Gellhorn, Vaughan and others have all reported cases with good results, the latter stressing its value in post-abortal infections.

Personal Observations

Last summer I purchased a machine and took it to Gallinger Municipal Hospital, where the members of the visiting staff of both schools were courteous enough to let me use it on their cases. Being of a very sceptical nature, I picked out the worst types of cases available. The results in most of them were quite striking. This group included cases of puerperal infection, postabortal infection, tubo-ovarian abscesses varying in size from a small orange to a grapefruit, chronic hydrosalpinx, pelvic abscess and a case of acute flareup and peritonitis following cauterization of the cervix.

I have summarized very briefly the findings and the results obtained in a few of these cases:

Case 1: S. H. was a 17-year-old colored woman with puerperal infection. The Wassermann was four plus. Previous history of gonorrhea was obtained. Following delivery she began running a septic temperature which had been going on for 39 days before Elliott treatment was started. She had been given 3 blood transfusions. On abdominal examination there was a large inflammatory mass extending 1 finger's breadth above and to the left of the umbilicus. On vaginal examination, the uterus was fixed and the cervix was surrounded on either side by a stony-hard exudate, a typical bilateral parametritis with very little tenderness. Treatment was started and given 1 hour daily for 8 treatments. After the fourth treatment, the temperature rapidly dropped to normal and the mass in the abdomen began to decrease in size. The temperature remained normal and treatments were continued every second or third day. After the twelfth treatment the patient left against advice, but at this time the uterus was movable and the mass was barely palpable on deep palpation at the brim of the pelvis.

Case 2: E. L., a negress, aged 19 years, was admitted July 25, complaining of pain in the lower abdomen, fever, leukorrhea, etc. The year before she had been in the hospital with acute salpingitis. Vaginal examination on this admission showed the uterus retroverted with bilateral adnexal masses on either side. "On right side, mass is size of a lemon." This patient was given 5 treatments over a period of 3 weeks, and on discharge the masses had completely disappeared. She has remained well so far.

Case 3: A. Y., a negress, aged 19 years, was admitted July 24, quite acutely ill, with temperature of 104.6°F., severe pain in the lower abdomen and rigidity over both recti low down. There was considerable shock and prostration. She had had a similar attack 1½ years ago. Pelvic examination showed bilateral masses filling the entire pelvis. She was acutely ill for 5 days with fever, rapid pulse, vomiting, etc. She was bleeding during this time. The first Elliott treatment was given on the fifth day. At this time there was a large inflammatory mass filling the pelvis and palpable above the brim of the pelvis on either side. There was very little room in the vagina for the bag and only very low pressure could be used. Morphine was given with the first few treatments, which were quite painful. The temperature subsided rapidly, and after a few treatments the tenderness disappeared and the masses gradually decreased in size. This patient had 10 treatments, and on discharge showed no evidence of adnexal disease. This was really quite a startling result. I was convinced early in the treatment, that she was developing a pelvic abscess which would have to be opened and drained, but once the mass started to go down it disappeared rapidly.

Case 4: B. M. was a white woman who had a very acute flareup following cauterization of the cervix. There was extreme tenderness and rigidity over the lower abdomen with high fever and shock and considerable peritoneal involvement. She ran a high fever for several weeks despite Elliott treatment. After 7 or 8 treatments with no clearing up, I discontinued it, thinking I was doing no good. About 2 weeks later her temperature dropped. Later examination showed that she had developed a localized abscess which had ruptured through into the vagina.

There were many cases of considerable interest but the time is too short to discuss them. One patient with large bilateral masses, after 8 treatments was operated upon. When the abdomen was opened, there were 2 large tubo-ovarian abscesses with thick walls and dense adhesions. No amount of heat, of course, would have cured this condition. One patient operated upon 6 years before for a cystic tube on one side, had an old mass on the opposite. This, strangely enough, yielded to treatment, and the mass disappeared.

Quite recently I have had an interesting case with a large abscess which was opened from below. Several days later it flared up again and was opened the second time. Shortly after this the patient ran a fever again, and a large mass was palpable on her left side above the brim of the pelvis. She was started on Elliott treatments, and her temperature has come down, the mass rapidly decreasing in size.

BURNS AS A COMPLICATION

Cases of burns have been reported, 1 or 2 of them quite severe ones, and this has been held up by some as making the treatments too dangerous. A study of the case histories of the patients who were burned reveals either carelessness in technic on the one hand, or too much enthusiasm on the other. Two of the cases, for instance, were given hourly treatments twice a day.

Holden, in 15,000 treatments at his last report, had only encountered 1 burn which was definitely due to carelessness. The temperature was allowed to go up to 140 degrees with the patient complaining severely.

In my first few weeks at Gallinger Municipal Hospital, when I was using K. Y. jelly as a lubricant, and not wrapping the outlet of the bag, I had 2 or 3 cases in which a slight exudate was formed under the urethra and down either side of the pubic arch. They were insensitive, however, the patient not knowing she had a burn, and treatment was continued without any ill effects. With ordinary care in lubrication with vaseline and not allowing the temperature to go over 130 degrees, burns should not be seen. The question is often asked, what happens if the bag breaks? My answer to that is that a new one costs 5 dollars! Two of ours broke while in use due to too much boiling, and there was no discomfort or burn in either case. They do not blow out. The pressure in the bag is only 1 to 3 pounds and is not sufficient to cause this. A leak develops, and the patient will say that something is dripping out; then the motor is turned off.

SUMMARY

By means of the Elliott Machine, prolonged heat may be applied to the pelvic viscera at a temperature which the skin would not tolerate. By means of the pressure within the bag, distention of the vagina and adjacent structures is obtained, giving a larger area over which the heat may be applied.

Physiologically the effects are:

1. A marked hyperemia and increased circulation of the vagina and pelvic organs;
2. A generalized leukocytosis of about 17 per cent in 87 per cent of the patients treated;
3. An elevation of temperature in the vagina, rectum, bladder and pelvic peritoneal cavity of 5 to 7 degrees;
4. A profuse discharge from the glands of the cervix and vagina.

The work of many investigators has shown that:

1. This temperature is lethal to the gonococci, and the organisms rapidly disappear from the discharge;
2. That large exudates tend to be rapidly absorbed;
3. That pelvic abscesses in many instances, if treatment is continued, will undergo resolution without drainage;
4. That acute cases of pelvic inflammatory

disease, adequately treated, will very seldom require surgery;

5. That chronic cases with organized exudates are harder to cure; but treatment is beneficial in these cases and even when an operation has to be done, the adhesions are sterile, the operation is not so formidable and convalescence is less serious;

6. At the Mayo Clinic all cases of pelvic inflammatory disease are now treated with the Elliott Machine before operation and then beginning again on the fifth postoperative day;

7. In acute cases of salpingitis before the exudate has become organized, results are uniformly good, and operation is seldom necessary.

CONCLUSION

Having tried this treatment quite thoroughly in practically all types of cases, I believe it to be by far the most logical method we have. We all agree on the efficacy of prolonged heat, and certainly this method is far superior to either the prolonged douche or to diathermy, combining as it does both excessive heat and distention. The way large masses of exudate disappear under treatment is quite startling.

Despite the bulky apparatus and the time that is consumed in treatment, I firmly believe that all cases of pelvic inflammatory disease should be given a course of treatments before the thought of operation is entertained.

BIBLIOGRAPHY

Cherry, T. H.: J. A. M. A., 1926, **86**, 1,745.

Cosgrove, S. A., and Waters, E. G.: Am. J. Obst. & Gynec., 1933, **25**, 729.

Counsellor, V. S.: J. A. M. A., 1933, **101**, 916.

Gellhorn, G.: New York, D. Appleton & Company, 1923.

Graham, H. F.: Am. J. Surg., 1932, **16**, 423.

Holden, F. C., and Gurnee, W. S.: Am. J. Obst. & Gynec., 1931, **22**, 87.

Jacobs, R. G., Vaughan, J. R., and Gellhorn, G.: Bull. St. Louis Med. Soc., 1931, June 5.

Mackin: Unpublished.

Scheffey, L. C., and Schmidt, W. H.: Physical Therap., 1930, **48**, 22.

MEDICAL EDUCATION AND HOSPITALS IN GREECE

Charles J. Demas, M.D.
Washington

Sometime ago I was asked, do they have good schools and hospitals in Greece? Recently having spent about 3 months in Greece, I shall try to answer this question, since it is plain to me that most Americans have erroneous ideas regarding modern Greece and her methods of education.

Education is universal in Greece by law, and their system of compulsory primary education is the oldest in the world, while their system of secondary schools for both men and women compares favorably with that of other countries. There are 5,387 primary schools, 1,297 Junior high schools, 382 colleges or gymnasiums, 182 private schools, teaching mainly foreign languages, several theology colleges and two universities, those of Athens and Salonica. Their language has hindered a better understanding of other nations, as it has also prevented a more exact knowledge of them. This condition will be improved in the near future as the adoption of the study of English becomes more widespread. Time and attention formerly bestowed upon German is now rapidly being given to English; in fact, at present as a result no doubt of the great aid from Americans during the war and following the Smyrna disaster, English is received more favorably than French. In Greece, at present, radical reconstruction work is going on along every line, and it would be well for American professional and business men to take a more active interest in them as the Greeks are now more susceptible to American influence than to any other. They are fully aware that practically all other influences are heavily tinctured with selfishness.

The University of Salonica is only about four years old and its life is questionably due to lack of funds and also the constant disturbances created by the Anti-Jewish feeling, since most of its students are Jews and their behavior is not very well liked by the Christian students.

The University of Athens is a real university, and the medical school is built on modern principles of medical education, although largely from French and German models.

In studying modern Greece, one must keep constantly in mind the fact that Greeks are hampered and retarded by an amount of tradition which exists in few other countries. Their great pride in their traditions is in many ways a handicap. The University is under the control of the state and includes the departments of theology, the arts and sciences, medicine, engineering, dentistry, and a number of other branches of learning. There have been medical schools in Greece since ancient times, but the present school as a department of the University is of comparatively recent development.

A well-arranged catalogue gives the various courses of the school in sufficient detail. Women are admitted on the same terms as men, all must have a college degree, and a considerable number are in attendance. The medical course covers 5 years of 2 terms each. This gives the student the equivalent of a master's degree and will admit him to practice. In order to receive the degree of doctor of medicine he must have one year of postgraduate (internship) work and present a thesis. Foreign physicians are admitted to practice on the presentation of acceptable credentials and an oral examination in 7 fundamental subjects.

I spent considerable time in visiting the medical school, and in attending its clinics and lectures. There are at least 15 main buildings which house the principle part of the medical school and its clinical facilities, and there are a number of smaller and less important ones. It should be borne in mind that at the time of my visits to the various lectures, clinics and laboratories of the school, they were seen at a great disadvantage. Some of its best teachers have been dismissed on account of their political sympathies, and the school was in the process of reorganization, with new teachers coming in. In fact, the political control of the university is one of its misfortunes.

The University building is situated in the center of Athens on a broad avenue called University Street and only a block away is the main laboratory building occupying a whole block and providing for the departments of physiology, anatomy, pathological anatomy, pharmacology, neurology, special pathology, etc. In the dissecting rooms of the anatomical laboratory the first- and second-year students are earnestly and industriously at work on practical dissection under the direction of the head of the department and several assistants. Bacteriology and general pathology are taken care of in still another building; and just outside the city on the Sacred Way are laboratories where vaccines and serums are manufactured. This is called the Pasteur Institute, and its laboratories are used for teaching purposes. As far as buildings and equipment are concerned, the laboratory department of the University would compare favorably with some A-grade schools of America.

Near the University is Hope Hospital, or the City Hospital. This hospital was erected and is supported by the City, but the patients are under the care of the staff of the medical school and are used for teaching purposes. Very good clinical facilities are provided in this hospital. General medical and surgical clinics are held here. I had the privilege of attending some of these clinics and found them practical in character. Students are taken to the bedside and taught to examine the patients and make a diagnosis. There are also lecture rooms, with blackboards and charts, stereopticon, and other facilities for teaching, where lectures, both didactic and clinical, are given to the whole class and demonstrations held, but bedside ward teaching is a usual method. The evangelismos, an unusually beautiful and well-equipped general hospital, is used for teaching purposes.

The Aeretion Hospital provides for the clinical teaching of general surgery and gynecology. A number of clinics at this hospital were visited. The general operating clinics are held in two amphitheaters, and there are bedside clinics in the wards. The students are required to examine patients and to make dressings and to do minor operations. In adjoining grounds is the Aiginition Hospital, which is devoted to neurology and mental diseases. These two hospitals are comparatively new and beautifully located with considerable ground surrounding them.

There is a special building for the treatment of diseases of children. A much larger, more complete and better appointed children's hospital, consisting of four or five buildings, one of which contained an operating theater, was in the course of construction at the outbreak of the war and has since been partly completed. Much of the material for this hospital was brought from America. Near the University is a well appointed maternity hospital.

Ophthalmology, otology and laryngology have a good building, well appointed and devoted to their special needs. These special hospital buildings are commodious, and the method of instruction seems practical and efficient. The Polyclinic located in the old section has been entirely rebuilt on the American plan since the war and is accessible to the poorer population. Here there are several departments of medicine and surgery, which furnish facilities for practical instruction. It is mainly for out-patients but it has a considerable number of beds. The dental school is in this building.

Dentistry is a coming profession now in Greece and practically all methods of teaching are those used in American dental schools. Even American texts of dentistry are translated in Greek and used for teaching purposes.

There are two new hospitals in Greece now, one of which, the Red Cross General Hospital, was erected by the Greek Red Cross, having received all of its beds from the American Red Cross. It has also received a large fund from wealthy Greeks, with which they have built this new 200-bed hospital on the American plan, or rather, that of the American College of Surgeons' Hospital Committee. The Medical Board is composed of the highest medical men in Greece who hold chairs at the University, with a training school for nurses conducted on the lines of our American training schools, especially that of Johns Hopkins, the Mayo Clinic and Canadian Nursing Schools. This hospital has become a part of the University group, in particular for surgery. The surgical results in this hospital are equal to those obtained in any of our A-class hospitals.

By going over their up-to-date records and statistics of appendicitis, and reviewing the end-results of 300 cases, I copied the following data for the years 1930, 1931, 1932 and 1933:

Type	*Cases*	*Deaths*
1. Acute with abscess	54	11
2. Acute with local peritonitis	14	4
3. Acute with diffuse peritonitis	32	7
4. Acute gangrenous	200	2
Total	300	24*

* Eight per cent.

In groups 1 to 3 considered, 84 per cent of patients had taken cathartics prior to operation. These surgical results, I think, are excellent.

The other new hospital is the Obstetrical Hospital of Mrs. Helen Venizelos, the wife of former Prime-Minister of Greece, Mr. E. Venizelos. This hospital was built about four years ago by Mrs. Venizelos in the suburbs of Athens on a 50-acre pine land at the actual cost of 30,000 English pounds. There is a special fund of 100,000 English pounds set aside, the interest of which is enough to take care of the coming expenses of the hospital. This hospital is 6 stories high and has 260 beds. Eight-tenths of the beds are for charity obstetrical cases, and the other two-tenths of the beds are for private patients at about six dollars per day.

No doubt there are other up-to-date obstetrical hospitals in the world, but I question very much if any of them can be compared to this institution. It is of classical Greek architectural design, but the hospital is built in an H-like shape, of pure Pantelic marble; the rooms are large, well-ventilated with all day natural sunlight, and there are big porches for the patients to be pushed out on for sunlight. There are hot and cold water, private bath and toilet in every room.

The medical board is composed of the most learned physicians of Athens, while the nursing school is directed by nurses of long experience and who have had 4 years of postgraduate work at Johns Hopkins University, New York Lying-in Hospital and some general hospital of England and Canada.

The laboratory, delivery and operating rooms are equipped with the best and latest equipment that could be bought in the United States, England and Germany.

The hospital became a part of the University for teaching purposes and has a very good and large out-patient department, cases being followed up by visiting nurses. The prenatal clinic lasts about 6 hours every day. The postnatal clinic is equally as large and well organized, with very promising results.

This hospital is at least the best in Eastern Europe and the results are very good, since the percentage of maternal and fetal deaths has been reduced to about 60 per cent of what it was 4 years ago.

Other hospitals worthy of mention are the Army and Navy hospitals and the private clinics of Drs. Mermigas, Geroulanos and Louros; while the Soteria Hospital is an excellent institution for tuberculosis, a disease with very high mortality, unfortunately.

Anyone studying the clinical teaching facilities of the medical school will be especially interested in the Syngros Hospital for venereal and skin diseases. This hospital was built, equipped and endowed by a wealthy Greek, Andrew Syngros, and is in every way a model institution of its kind. In fact, it would be difficult to find a more perfect institution for the treatment and the teaching of these diseases. The active interest and enthusiasm of the directing physician, Dr. Photinos, keeps it abreast of the times, and he has developed the latest methods of giving instruction. An interesting feature of the management is that the female patients are practically prisoners in this hospital behind locked doors. The clinic here occupies an afternoon. One of the clinics I attended was given over to a discussion of chancre. First, the students studied the pathology in the laboratory. Here a number of microscopes with sections of tissue were in readiness for the microscopical examination. A description and pictures of the tissue were also provided. Features of the disease as relating to the specimen were discussed. In this way a variety of sections and a variety of descriptions were taken up and each student had the opportunity of making the examinations under direction of an assistant.

On the other side of the same room was a line of male patients, each exhibiting his lesion, which had been previously cleansed, and an opportunity was given each student to examine these. In another room were 10 or more female patients on high examining tables (the faces were covered) so that the students could easily and quickly examine the lesions.

A fair criticism of the medical school would be that on account of their traditions, their long existence under Turkish rule, and their far removal from the influence of Western civilization, their teaching is too largely theoretical and argumentative. While far-seeing individuals of influence and ability, like Andrew Syngros and Mrs. Helen Venizelos, have provided the medical school with laboratories and hospitals for a most complete and practical medical school, the average professor could improve his course by the introduction of more practical methods. The large group of buildings devoted to the interests of medical education attest the fact that a very practical and strong effort has been made and is still in progress in Greece to make the medical school a practical working school for the education of doctors thoroughly qualified to care for the sick. While the department has defects and deficiencies, certainly its well organized faculty, well developed program and its group of buildings and hospitals devoted to medical education would be a credit to any city or country. After visiting a large number of their clinics and laboratory demonstrations and watching their practical work, the American observer is easily convinced that the great need is an infusion of British and American methods and ideals. Much of the new hospital equipment since the war has come from America.

Finally, I would suggest that surgeons visiting the Near East interest themselves in medical education in Greece. The Greeks need the aid and sympathy of the profession of Great Britain and America and will greatly appreciate our interest. Such a visit will be not only of great benefit from a professional point of view, but there are numerous other points of great interest, as one can still see not only the glory that was Greece but the glory that Greece is today. Greece is a cosmopolitan country, known for her excellent climate, hospitality, good transportation and excellent hotel accommodations.

BASAL-CELL EPITHELIOMA OF THE LARYNX WITH APPARENT RECOVERY*

Don S. Knowlton, M.D.

Associate Professor of Otorhinolaryngology, Georgetown University School of Medicine

The patient, Mr. F. C. R., came to my office on the morning of October 19, 1933, having been referred to me by a former patient. He was a large man, in apparent good health, aged 62 years, weighing 203 pounds. His chief complaint was hoarseness and some pain on swallowing. Early in September of 1933, while at his home in Florida, he had awakened one morning with a husky voice, and as he stated, "a frog in his throat." He was an inveterate smoker, consuming between 10 and 20 pipefulls of tobacco a day, plus several cigars. He used alcohol in moderation. He came to Washington, D. C., for a visit in early October, and on or about October 15, 1933, felt, for the first time, some pain on swallowing. This fact, and the continued hoarseness, led him to consult a physician. From the onset of the hoarseness until the end of October, 1933, the patient estimates that he lost approximately 10 pounds. Physical examination showed the fauces to be moderately injected and the tongue slightly coated, but no odor to the breath and no postnasal secretion. Laryngoscopic examination showed the vocal cords to be fairly normal, with the normal excursion on respiration and phonation. The left arytenoid and aryepiglottic fold was injected and slightly swollen. There was no ulcerated area seen at this time and no glandular enlargement of the neck. The patient was treated locally by instillation of one of the silver salts, given quartz light treatment for 3 minutes, and cautioned as to the use of tobacco and all condiments. He was also given an oil spray for his throat, and advised to return in 3 days for a check-up. For some unknown reason, he failed to return to my office until October 31, exactly 12 days after his first visit. He did not look well at this time. His voice was more husky, he complained definitely of increased pain on swallowing, and said that his appetite had failed. Laryngoscopic examination showed extreme redness of the fauces, increased edema of the left arytenoid and aryepiglottic fold, and an ulcerated area slightly smaller than a dime, with irregular borders, just posterior to the left arytenoid. My impression at this time was that the lesion was malignant, and a consultation was requested by the patient's relatives. Dr. David Davis corroborated my findings by laryngoscopic examination, and a biopsy under local anesthesia was done. A piece of tissue was removed posterior to the left arytenoid. The tissue was very firm and cut with some difficulty. A specimen was sent to Dr. Tomas Cajigas, who made a diagnosis of basal-cell epithelioma with chronic inflammatory changes. After some deliberation, we felt that at this stage of the picture, deep X-ray therapy offered the most. It is my sincere belief that each of the doctors concerned with this case asked himself the same question Dr. Joseph C. Beck has put to himself many times, "If I had a cancer of the larynx, what kind of treatment would I want?" We decided to turn the case over to Dr. Groover with instructions to go the limit, using the modified Coutard technic. The patient received 19 radiations, beginning November 2 and ending November 23. We had been instructed by Dr. Groover to watch out for signs of edema, and the patient had been instructed to call the doctors immediately if there should be any difficulty in breathing, but at no time was there any respiratory embarrassment. The patient did have some uncomfortable moments. There was some dermatitis with desquamation of the skin of the neck. Repeated laryngoscopic examinations in December and January showed the ulcerated area to have diminished substantially, in February the site was completely healed, and later the same month the patient returned south. When the patient returned to Washington in the spring of 1934, his condition was satisfactory. He had gained 20 pounds, his voice had recovered its normal timber, and laryngoscopic examination was negative. As the subject of this paper states it would seem that this was a case of basal-cell epithelioma of the larynx with apparent recovery. The patient will be carefully followed up and reported upon again at a later date.

ABSTRACT OF PAPER READ BEFORE THE SOCIETY

"The Etiology and Treatment of Functional Dysmenorrhea,"* **Jacob Kotz, M.D., and Elizabeth Parker, M.D.**

Many theories have been advanced as to the etiology of functional dysmenorrhea, among which anatomical defects and psychological factors have held an important place. Without denying entirely these as etiological factors, in the light of newest knowledge it would seem that other factors are more commonly the basis of this malady. We believe that most cases can be traced to one or more of 4 causes, namely, pelvic congestion, allergy, neurosis, or endocrine imbalance. It is the purpose of this paper to discuss the endocrine basis and treatment thereof indicated. Novak and Reynolds have found that theelin stimulates uterine contractions, whereas progestin and the anterior pituitary-like factor of pregnancy urine depress this function. Our study has been of the blood and urine content of theelin in cases of dysmenorrhea. The technic used was that of Frank and Goldberger. The cases fall into 3 groups in which we obtained the following results: The first group studied consisted of cases of dysmenorrhea in which a single blood theelin test was performed within 5 days of the expected period. Most of these cases showed at least a normal amount of theelin and a large per cent showed an excessive amount. The second group consisted of young unmarried women who complained of mild menstrual disorders on whom tests were performed at weekly intervals for 5 weeks. All of these cases except one showed at least a normal amount of theelin present, the majority showing an excessive amount throughout the cycle. Complete urine titrations were not done, but tests of single specimens revealed a large amount of theelin present. Group three consisted of cases in which blood and urine analyses were made. Although our series is not yet complete, the results in the cases so far are very much alike and may be demonstrated by a typical example. The blood tests showed an excessive amount of theelin throughout the cycle. That this high level was not due to a high renal threshold is shown by the amount excreted by the kidneys. The general character of the urine curve follows that of the normal, but there is an excessive amount present throughout the cycle, the total amount being more than twice that of normal. On the basis of these findings it seems justifiable to conclude that there is an excessive amount of theelin present, due probably to an incomplete ovarian cycle. The follicle begins to mature but ovulation does not take place, or having taken place is not followed by corpus luteum formation, resulting in deficient progestin production. Thus theelin, in excess, causes excessive uterine contractions, which are painful. For proof that uterine contractions cause pain it is only necessary to mention the pain incident to labor almost without exception. If we add to this the factor of low threshold for pain, a cause of painful menstruation seems evident. In the treatment of functional dysmenorrhea, general hygienic measures, psychotherapy, physiotherapy and drugs have their place but rarely effect a cure. Surgery has been extensively used, but we believe that it is rarely indicated, less often effective. Organotherapy and X-ray seem to offer our greatest hope for effective and harmless therapy. In the light of the above conception of dysmenorrhea, that is, an imbalance between theelin and progestin production, therapy should be directed toward a reëstablishment of the normal ratio. It is the deficiency of progestin which we believe to be important. There are two methods by which we may stimulate the ovaries to complete the cycle and thus produce sufficient progestin, namely, the administration of prolan and the use of stimulating doses of X-ray to the pituitary gland. We have used Antuitrin-S, together with thyroid when indicated, in a large number of cases with gratifying results. It is given hypodermically in doses of 1 cc. every other day during the last two weeks of the menstrual cycle. The medical profession has always regarded the X-ray as a destructive agent. Used in fractional doses where it is indicated it is more helpful in the treatment of functional disorders of the female sexual apparatus than the endocrine preparations available today. It makes little difference whether we look upon radiation as a stimulative or depressive agent, the fact remains that radiation has played the rôle of guardian angel in the treatment of so many functional disorders of the female sexual apparatus. But radiation should never be used unless the patient has had a pelvic examination by a competent gynecologist and also hormone studies of the blood and the urine to determine the state of function of the ovaries and the pituitary gland. No one treatment is a "cure-all." Cases must be carefully studied and the appropriate treatment selected. Our present methods are far from perfect, but are the best that we have and must serve until more effective methods are available.

---

* Read before the Section on Ophthalmology and Otolaryngology, November 23, 1934.

* Presented November 14, 1934.

"THE EXPERIENCE AT THE MASSACHUSETTS GENERAL HOSPITAL WITH COMPLETE THYROIDECTOMY FOR HEART DISEASE,"* **Howard B. Sprague, M.D., Boston.**

One of the most important recent additions to the treatment of heart disease has been the complete ablation of the normal thyroid gland as described first by Blumgart, Levine, and Berlin of Boston. The original paper was published June, 1933, and since that time the authors have extended the indications for the operation to include certain cases of angina pectoris as well as those with congestive failure. The operation is performed with the hope that a reduction in the basal metabolic rate to a level below normal will reduce the work of the heart to such an extent that it will be able to carry on in spite of the damage from valvular or myocardial disease. The optimal level of the metabolism is found in the individual case and is regulated by the use of thyroid extract by mouth. This work has been closely followed at the Massachusetts General Hospital, and the present report is a preliminary survey of the experience at that hospital. These early cases were selected with reference to the fact that they appeared to have an absolutely bad prognosis; the results in such a group cannot be hoped to be so strikingly beneficial as in one in which the patients were not suffering from such advanced disease. Tables 1 and 2 summarize our results from July, 1933, to November, 1934.

---

* Abstract of preliminary report read before the George Washington University Medical Society, Washington, D. C., November 17, 1934.

It will be seen that our experience has been confined almost entirely to the relief of patients with congestive heart failure. Of the 2 patients with angina pectoris, 1 has been much relieved but the other was not improved and died about 3 months after operation. The second table shows the details of the relief of symptoms following the operation. This does not include angina pectoris. The most marked benefit seems to have been in the patients with orthopnea, palpitation and heart consciousness. The improvement in these symptoms was rapid and apparently preceded a definite reduction in the metabolic rate.

TABLE 1

SUMMARY

Number operated upon (9 males, 10 females)	19
Type of cardiac failure:	
Congestive	17
Anginal	2
Etiologic types:	
Rheumatic	12
Hypertensive	3
Coronary	2
Luetic	1
Unknown	1
Number improved (57.9 per cent):	
Much	5
Moderate	6
Number unimproved	1
Number dead (1933, 6; 1934, 1; 36.8 per cent)	7
Causes of deaths:	
Operative	3
With heart failure	3
Pulmonary infarct	1

TABLE 2

RELIEF OF SYMPTOMS NOT INCLUDING ANGINA

SYMPTOM	NUMBER OF CASES PRESENTING	TOTALLY RELIEVED	IMPROVED	NOT IMPROVED
Dyspnea	11	0	9	2
Orthopnea	9	4	4	1
Cardiac asthma	8	7	1	0
Palpitation	10	4	6	0
Precordial pain	5	4	1	0
Edema	8	2	4	2

Complete thyroidectomy is not to be recommended in cases showing the following conditions: (1) Severe and progressive congestive failure which is not remediable even temporarily by rest and medical treatment, (2) acute cardiac infection, rheumatic or bacterial, (3) syphilitic heart disease with aortitis and aortic regurgitation, (4) severe nephritis, (5) hypertension insofar as relief of the high blood pressure is concerned, (6) cerebral arteriosclerosis, (7) coronary occlusion, recent or if prevention of other occlusion is hoped for (the results in these cases, in any event, are difficult to predict), (8) an already low basal metabolic rate, especially if the blood cholesterol is over 300 mg. per 100 cc. of blood (there are exceptions to this, however, and good results may be obtained in patients whose rate is as low as minus 15 per cent).

The more immediate dangers of the operation appear to be mediastinitis, injury to the recurrent laryngeal nerves, tetany from parathyroid removal, bronchopneumonia, pulmonary edema, and uremia. The more usual sequelae in patients who do poorly are progressive congestive heart failure and coronary thrombosis dependent upon the uninfluenced increase in the cardiac disease.

Success in the operation is very dependent upon following the careful technic outlined by Blumgart both in the operating room and in the pre- and postoperative periods. Particular attention should be paid to drugs given for sedation since the doses must be kept small. The necessity for coöperation between the medical and surgical services and nursing staff should be emphasized.

Patients on whom this operation is performed remain cardiac problems and have in most cases some added symptoms due to hypothyroidism. These include muscular weakness and loss of energy, gain in weight, increased susceptibility to cold and to respiratory infection and change in personal appearance. In our series of 11 patients improved by removal of the thyroid gland, 7 are enthusiastic about the result. From the standpoint of the patient, therefore, we may say that we have had in the entire series, approximately 40 per cent success and in those still living about 60 per cent. When, however, one realizes that without operation no improvement was likely in this group it seems a method of therapy worthy of further trial. The most difficult problem at present is the selection of cases. This is the greatest obstacle to the enthusiastic general recommendation of the operation, and it depends very largely upon the realization that the degree of benefit to be expected by the individual patient is almost unpredictable. In our series, improvement in selection of cases is evident—in 1933 in 12 operations there were 2 operative deaths; in 1934, out of 7 operations there has been only 1 operative death and none in the past 6 consecutive operations.

It would appear that 2 groups of patients may benefit from the procedure: (1) Patients with angina pectoris whose angina is very easily induced on effort or comes at rest, provided they can be shown not to be entering into a state of coronary occlusion and are on a stable cardiac level; (2) patients with rheumatic heart disease whose complaints are those of palpitation and heart consciousness, orthopnea, paroxysmal dyspnea, or dysp-

(*Continued on page 62*)

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA
Editorial Office, 1718 M Street

EDITORIAL STAFF

COURSEN B. CONKLIN, A.M., M.D., *Managing Editor*
WALLACE M. YATER, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

THE EVILS OF SOCIAL INSURANCE

It is particularly appropriate at this time to review the experience of Germany with social insurance, inasmuch as there is a great deal of impending legislation in this direction. The German people have had social insurance now for 50 years, and their experience has demonstrated how very serious are the pitfalls resulting from this form of insurance. Recently Gustav Hartz, who has been for many years one of the Labor leaders in Germany, who has been a member of the Reichstag, and who is at the present time connected with the largest publishing firm in Berlin, has written a brochure entitled "Will America Copy Germany's Mistakes?"* This article gives so clearly the picture of the German experience with social insurance that some extracts from this article may be very enlightening.

"When, under the great statesman Bismark's chancellorship, social insurance was first introduced, he was, and not without reason, warned against taking this jump 'in the dark,' for nowhere did any experience in the matter exist.

"Now, the introduction of social insurance no longer means jumping in the dark; we look back upon an experience of 50 years, that points out the way to real social politics—and at the same time shows how they should not be made.

"It is not advisable to give ear to the biased experiences of advocates of social insurance who, in many cases, draw profits therefrom, for there is no institution in all the world that is so much extolled and the praise of which is so little justified as social insurance."

"To consider unemployment insurance an achievement of recent years, to call it the 'crown of social insurance' is a mistaken view, for every social insurance is an unemployment insurance, whether the unemployment is due to illness, accident, early incapacity, old age, or to being out of work."

"It may easily be proved that social insurance is not only caused by lack of means, but it even makes of it a social principle, aggravates and spreads it, makes it permanent."

"The instinct given man by nature to hoard for eventual times of need, which forms the basis of accumulating money and of acquiring property—upon this all culture and progress are founded—could only be completely killed by a communistic-socialistic vision in which people were not obliged to put money by out of a sense of self-preservation because they were shielded from the worst, from direct necessity, by social insurance."

"The State-political results expected of the establishment of social insurance, viz., making the workmen contented and loyal citizens, were not only negative, but they actually led to ends opposed to those anticipated."

"The so-called self-administration of social insurance by the circles concerned did nothing to improve the situation. Discontent and grumbling did not cease, it grew. This arose from the social insurance principle, which is only able to grant a minimum, and the odium of the insufficiency accompanying it, in connection with which the saying was coined: 'too little to live on and too much for starving.' From the very beginning the social insurance legislation was scoffed at by the radicals who called it 'Beggars' soup politics,' and they never ceased demanding an increase of the allowances."

"Woe to the State which imagines that crises may be alleviated or stopped by the introduction or the existence of a comprehensive system of social insurance. Sad disappointment awaits it. Every economic crisis swallows up the best organized social insurance and consumes its funds at both ends—at the end of the diminishing premiums and at the end of the increasing benefits."

---

* Written and Translated for the Pennsylvania Self-Insurers' Association, Finance Building, Philadelphia.

"In the time of her hardest social crisis, social insurance was Germany's greatest inner trouble."

"In Germany the most firmly convinced fanatics on social insurance—such people do still exist and in most cases they fare very well—are even now sure that unemployment insurance 'is not an insurance really.' In 1927 this 'Crown of social politics' was introduced, with fixed premiums and fixed benefits. Three or four years later nothing was left and all that remains of unemployment insurance today is its name. Now the welfare principle is applied for the unemployed: insurance allowance without examining the necessity, namely, with legal rights for six weeks only. Juveniles and working women have no legal claim.

"The period for which benefits are made must of course be limited, as with a subscription of $6\frac{1}{2}$ per cent of their wages not all unemployed can be supported. The greater the number of unemployed, the lower the limit must be set. At first the allowances were made for 26 weeks, now for 6 weeks. As in this crisis, unemployment frequently lasts for years, and most of the unemployed no longer receive any allowance. The unemployed insurance at present scarcely supports one-third of the army of unemployed, while the other part is supported by the welfare and the crisis centers. The same was the case before social politics had their 'crown' put on. These institutions draw their funds from the State revenues."

"It is not in the least different with the sick insurance. The unevenness in the business level, the seasons, holidays, a change of work, failing health and many other things contribute to bring about a noticeable change in morbidity. **Since the sick insurance has been in effect, the average number of days of incapacity to work owing to ill-health has risen from $5\frac{1}{2}$ to 28 days, although health in general has considerably improved.** In the strict sense of the word the sick insurance is no insurance either. From a technical and mathematical standpoint it is also quite unsettled in view of the moral hazard noted above.

"This is clearly seen when considering that the individual insurance case, whether due to illness or unemployment, can be willfully caused or extended. Where is the borderline between illness and health, between mere indisposition and illness, between dread of getting ill and bluff? And if the insured person is really ill, where is the borderline between ability or disability to work? How can the duration of an illness be fixed?

"Illness is the most incalculable risk in existence.

"Even the doctor is mostly, or at least frequently, unable to diagnose correctly and to distinguish pretenders and hypochondriacs from really sick people, or rather to tell whether a man is fit to work or not."

"Of all the risks in social insurance only old age, death, and number of dependents can be exactly established. These are, therefore, the only cases in which an unobjectional actuarial basis, and an unquestioned legal claim are possible. Everything else is hazy and uncontrollable."

"Dread of illness obsesses most people, and this has been pressed into a system 'illness made easy,' by which the will to be well is strangled. The doctor is consulted a dozen times where once would be sufficient—the insurance pays. The prescribing of medicine, bandages, etc., is desired. When they have been obtained they lie about until they are no longer fit to be used and must be thrown away—the insurance pays. Besides, it is nice to get something in return for the premiums paid year in year out. **Excessive 'overdoctoring' is the result, and fear of illness shakes the will for recovery—the best aid to health. Pretenders and hypochondriacs are bred and the use of medicine becomes excessive.** The advertising of certain remedies and cures created a medicine craze. A few years ago it was ascertained that four times as much money was used for doctors' fees and medicines for 35,000,000 of people in insurance as

LIBR

for 30,000,000 of uninsured. This was stimulated, unthinkingly by a desire to get sick money. An actual run on the sick insurance allowance set in.

"At first sight it seems improbable and paradoxical that a desire to obtain sick money that scarcely amounts to half the sum of wages should arise. It appears impossible that someone should, unless compelled by illness, forfeit his wages to get an allowance of half the amount. Unfortunately life does not run a straight course between health, working ability, working possibilities on one hand, and illness and disability on the other, nor do people's minds and actions.

"In millions of cases, for example, when wages are being decreased, when work is scarce and work hours in consequence shortened, when there are fewer shifts, many holidays, work restrictions at certain seasons, outdoor work in frosty weather, 50 per cent of the wages is welcome. One objects to the work he is given, another does not feel like working, a third's time is taken up by some family matter for which he would have to take leave of absence and forfeit his pay. In such cases the sick insurance comes in handy. Besides this, there is also deceitful trickery. Fictitious contracts are made, doctors are induced to prescribe medicine, and instead of the medicine, toilet soap and scent, etc., are handed out by the pharmacies.

"How can this possibly be done, some ask. Those who consult doctors are supposed to be ill. That is all very well if the doctors were always able to detect whether the statements of the patients were correct. Often a diagnosis is impossible. He who would like to prove this should go to ten doctors, complain of headache, pain in the limbs, rheumatism. All ten will start a treatment for headache or rheumatism, without discovering that nothing whatever is the matter with the patient.

"Besides that, all doctors are glad to get new patients, for do they not mean their livelihood?

"Medical science has become a cheap article, and doctors have given up conscientious treatment. The genuine patient is neglected, is not given the necessary care.

"The greater the mass consultations, the lower are the doctors' fees. The amounts paid to panel doctors for each single case are deplorable. They are, therefore, compelled to resort to mass practice.

"The sick insurance unrolls the entire problem of the medical man's existence. Mass demand compelled a limitation in the use of medicines. Doctors must not prescribe what they consider good for the patient, they only being allowed to give remedies entered in a book of medical regulations for insurance purposes.

"The insured workman becomes a second class patient."

"The genuine patient is justly indignant to find that the existence of his illness is doubted, and that he who has always paid his premiums regularly and has a right to demand conscientious attendance, is considered a cheat.

"This system, together with the rest of the bureaucratic apparatus, has wedged itself between doctor and patient, completely destroying the patient's confidence in his physician, which greatly retards all recovery."

"In the beginning nobody thought of insuring all workmen, merely needy ones. But soon everybody was 'needy.' Today, with members of families included, two-thirds of the nation are compelled to be insured."

"Liberty and progress are possible only where the will to get on and to accumulate capital is not hindered, but furthered."

"During the last few years the administration costs amounted to 400 million marks annually. The costs cannot be called too high and cannot possibly be materially reduced.

"However, the whole matter gets another aspect in view of the fact that these expenses are covered by workmen's premiums and are deducted year by year from the money intended for these men's support. In one worker's generation—say from the age of 20 to 60, or 40 years—it means the gigantic sum of 16,000,000,000 marks, which, therefore, is lost from the funds originally intended for sick, unemployment and old age insurances.

"An army of about 70,000 officials is required

JUN 12 1962

to handle part of the wages of the workers under compulsory administration, for what else is social insurance?"

"Premiums started on a modest basis. The first were $1\frac{1}{2}$ per cent for the employee and $\frac{3}{4}$ per cent for the employer. Today, the entire premium averages almost one-fifth of the amount of the wages and for minors it is nearly 30 per cent. The involved way in which the contributions are divided between employer and employee is omitted here, as an alteration is pending. It is expected that employer and employee will in future bear equal share, about 10 per cent each. Is it to be expected that an employer can afford to make an employee a present of 10 per cent in addition to his wages?"

"The only part of the wages he might be able to save in order to build up a capital is taken from him, thus preventing him having any resources of his own. Whether he wants to or not, he is doomed forever to remain a proletarian. It is social insurance, therefore, that makes needy people, in order to give them after they have become needy, very inadequate support. Social insurance originally was established to help those in distress. Now there are poor of its creation."

ACTIVITIES OF THE SOCIETY

Business Meeting, February 6, 1935

Resolutions adopted:

The Medical-Dental Service Bureau, Incorporated*

Resolved, That the Medical Society of the District of Columbia approve the establishment of a Medical-Dental Service Bureau as outlined in the following prospectus.

Resolved, That the sum of $1,200 be loaned by the Society to the Medical-Dental Service Bureau, Incorporated, as the share of the Society in setting up the bureau. (This amount will undoubtedly be returned within the first year. It is felt that no special time limit be made for this loan, however, and that no interest be charged. The Committee on Medical Economics is willing to allow this money to be drawn from the $1,500 which has been set aside in the budget for 1935 for its use.)

Resolved, That the Committee on Coördination of Resources for Medical Care, in conjunction with representatives from the other three societies involved, be empowered to inaugurate the Medical-Dental Service Bureau, Incorporated.

Medical and Dental Economic Plans— A Prospectus

It would seem that the only way the medical profession may avert impending health insurance legislation, with its large administrative overhead, its top-heavy organization, its political domination, its weakening of the moral fiber of the people, its increased taxation, its depression of medical standards and its enslavement of medical practitioners, is for the medical profession itself to demonstrate that it is able to handle the problem of the care of the sick in a more satisfactory way. It would seem that unemployment insurance and old age pensions may be desirable, but beyond those protections the individual should be required to handle his own affairs. There appears to be no more reason why there should be health insurance any more than there should be clothing insurance, fuel insurance, rent insurance or groceries insurance. Voluntary health insurance of the type which provides for cash benefits in case of sickness would not be objectionable, since the relationship of the patient to his physician remains a direct personal one.

Your Committee on Medical Economics, through its Subcommittee on the Coördination of Resources for Medical Care, is proposing the second part of its plan to handle more efficiently the performance of and the payment for medical services.

Part 1. The Central Admitting Bureau

The first part of its plan was the establishment of the Central Admitting Bureau, the functions of which are to determine who are eligible for free medical services under the existing medical-economic system and who shall have their hospitalization partly financed by funds of the Community Chest. This part of the plan takes in the class of patients who may be considered indigent. It presupposes the rendering of medical services by the medical profession to this class of patients without remuneration therefor. Your committee is not unmindful of the burden imposed upon the medical profession by this system, but it is the system which has existed for a great many years. The Central Admitting Bureau protects the medical profession from the exploitation of its services and also protects the donating public against the improper use of its funds. Your committee feels that physicians should be at least partly remunerated for services to the indigent and has a plan under consideration, which is, however, not sufficiently developed to make discussion advisable at this time.

Part 2. The Medical-Dental Service Bureau, Inc.

The second part of the plan is to handle the economic features of medical services to the class of patients who may be termed the small-wage earners, those who are not indigent but who can pay for medical or dental services for which reasonable fees are charged only on the deferred payment plan. The second part of the plan is to establish, therefore, a service bureau which will assist such persons to budget their medical and/or dental bills and to pay them over a period of time on the installment plan.

---

* The District of Columbia Dental Society, the Medico-Chirurgical Society (the Negro medical society) and the Robert T. Freeman Dental Society (the Negro dental society), have unanimously approved this project.

MEDICAL SERVICE BUREAU

ESTIMATED INCOME AND EXPENSE

Based on 200 Doctors and Dentists Coöperating and Each Averaging $100 Worth of Business per Month

	1st month	2d month	3d month	4th month	5th month	6th month	7th month	8th month	9th month	10th month	11th month	12th month	Total
Salaries:													
Manager	$300	$300	$300	$300	$300	$300	$300	$300	$300	$300	$300	$300	$3,600
Stenog.-Clerk	125	125	125	125	125	125	125	125	125	125	125	125	1,500
Clerk-Bookkeeper				100	100	100	100	100	100	100	100	100	900
	425	425	425	525	525	525	525	525	525	525	525	525	6,000
Rent	100	100	100	100	100	100	100	100	100	100	100	100	1,200
Telephone	25	25	25	25	25	25	25	25	25	25	25	25	300
Stationery, Printing & Office Supplies	100												100
Postage	25	25	25	25	25	25	25	25	25	25	25	25	300
Capital Expense:													
3 Desks $75													
3 Chairs 15													
4 Chairs extra 18													
1 File Cabinet, letter size 25													
Desk Trays, etc. 15													
Typewriter 85													
Adding Machine 150	383												383
Total	$1,058	$575	$575	$675	$675	$675	$675	$675	$675	$675	$675	$675	$8,283
Less 10 per cent Retention	167	333	500	666	833	1,000	1,166	1,333	1,499	1,666	1,833	1,999	12,995
Excess of Expense over Income	891	242	75	9									
Excess of Income over Expense					$158	$325	$491	$658	$824	$991	$1,158	$1,324	$4,712

On the above basis, $1,217 capital will be required to finance the operating loss of the first four months.

It is suggested that this sum be increased to $2,000 to allow for emergencies.

On the above basis, the entire $2,000 can be refunded at the end of nine months.

(a) *How the Bureau Works*

The determination of the amount of the fee charged by the physician or dentist remains under the plan a direct agreement between the patient and the individual or individuals rendering medical and/or dental services. Whether the patient takes advantage of the service of the bureau depends upon whether the physician or dentist agrees to allow him to do so. In other words, it is the physician or dentist who sends the patient to the bureau with a card which gives the physician's or dentist's consent and which shows the amount of the bill and the services rendered to that date. When the patient or his representative appears at the bureau he is required to give all of the data concerning his financial status, viz., his income, regular expenses and unusual expenses. From these data the bureau helps him to determine how much he can pay each pay-day on his bill or bills for medical or dental services. He is then expected to pay this amount regularly as long as the conditions exist under which he made the agreement. If other medical or dental bills accrue while he is still making payments on the original account, an adjustment is made so that all physicians or dentists who are involved receive their pro rata amount of the installments. Or if the patient's economic status changes so that he can pay on his account faster, larger installments are determined upon. If the patient's economic status changes in the reverse direction so that he can pay only a smaller installment or nothing at all, the amount of the individual installments is decreased or the whole account cancelled. How the physician and dentist avoid total loss when the latter condition comes about will be discussed later.

When the patient pays his installment the bureau deducts 10 per cent for expenses and to establish a sinking fund. No interest is charged the patient. The physician or dentist is paid each month his pro rata share of the amount collected for his bill less 10 per cent.

(b) *The Organization of the Bureau*

The bureau shall be known as the Medical-Dental Service Bureau, Inc. It shall be incorporated in the state of Delaware as a non-profit organization without capital stock. It shall be governed by a Board of Directors consisting of one representative for each 100 active members and one extra representative for 50 or more active members beyond the last 100 members of each of the following societies: The Medical Society of the District of Columbia, the District of Columbia Dental Society, the Medical-Chirurgical Society (the Negro medical society), and the Robert T. Freeman Dental Society (the Negro dental society). The latter organization, having less than 50 active members, shall be represented by one director. These directors shall be appointed each year to begin service on the first day of January by the organizations represented in any manner of selection each society desires and shall serve for a period of one year, after which they must be reappointed. The directors shall have general direction of the policies and running of the bureau according to the by-laws of incorporation. They shall meet at least once each month to consider the affairs of the bureau. The services of the bureau shall be available to all active members of the four societies in good standing. The number of physicians and dentists who may use the bureau will, therefore, be about 1,400.

(c) *Arbitration Boards*

Each of the four societies concerned shall appoint an arbitration board of its own composed of as many members as it desires. The duties of these boards shall be to maintain general supervision over fees charged by the members of their respective societies to patients using the bureau. Whether a definite fee schedule is used for patients in various income brackets shall be left to the discretion of each society and shall concern only members of the society setting up the schedule. Each board shall appoint one of its members acting arbitrator for a certain period of time. This arbitrator shall maintain contact with the business manager of the bureau to determine whether members of his society are charging exorbitant fees. If the acting arbitrator cannot bring the member to agree that the fee is exorbitant he shall bring the matter before his arbitration board for consideration. Each arbitration board shall meet regularly each month in advance of the meeting of the board of directors. If the board of arbitrators, after hearing the statement of the member of its society who is supposedly charging exorbitant fees to the class of patients treated, may recommend that the member be withheld the privilege of making use of the bureau. All recommendations shall be subject to approval of the board of directors whose decision shall be final.

(d) *Personnel of the Bureau*

The bureau shall begin with one manager whose salary shall be $300 per month and one stenographer-clerk, whose salary shall be $125 per month. If and when the board of directors deem it advisable, upon recommendation of the manager, an additional clerk-bookkeeper shall be added, whose salary shall be $100 per month. Rental charge allowed shall be determined by circumstances, but should not exceed $100 per month at the start. The attached sheet shows the estimated income and expense for the first year of the bureau based upon the coöperation of 200 physicians and dentists each averaging $100 worth of business per month.

(e) *Location of the Bureau*

It is hoped to be able to place the bureau in the same building as the Central Admitting Bureau, where it would pay its pro rata share of the rent, phone service, etc. The Service Bureau should be a supplementary part of the Central Admitting Bureau, inasmuch as it is rendering an altruistic service to the community along the same lines. The two bureaus should be mutually helpful.

(f) *Financing of the Bureau*

It is felt that the expenses of the bureau should be met from the treasuries of the four societies, pro rated according to the number of active members, until such time as a surplus exists, after which the monies expended by the societies shall be refunded without interest. It is estimated that $2,000 will be sufficient to finance the bureau until it becomes self-sustaining and that this amount would be refunded within the first year.

(g) *The Sinking Fund*

If the bureau is used sufficiently by the members of the societies a substantial sinking fund would accrue. Since this is a non-profit corporation this sinking fund could be used for one or both of two purposes. It might be used to reduce the percentage deducted for expenses. Or it might be used to settle the accounts of those patients who through adversity became unable to continue payments. The latter would require delicate handling and should be very carefully considered by the Board of Directors before such a plan were developed.

(h) *Unworthy Delinquents*

The Bureau should be authorized to sue those individuals who cease to pay their installments although still able to do so. It should use discretion, however, in cases of those who temporarily become unable to pay but who will resume payment as soon as they again become able. Leniency should be exercised.

(*i*) *Publicity*

The coöperation of business men, federal employees and others should be obtained by explaining the purpose and advantages of the bureau to various representative organizations. Experience of similar bureaus elsewhere has shown that both employers and employees soon become very favorably disposed to such a plan.

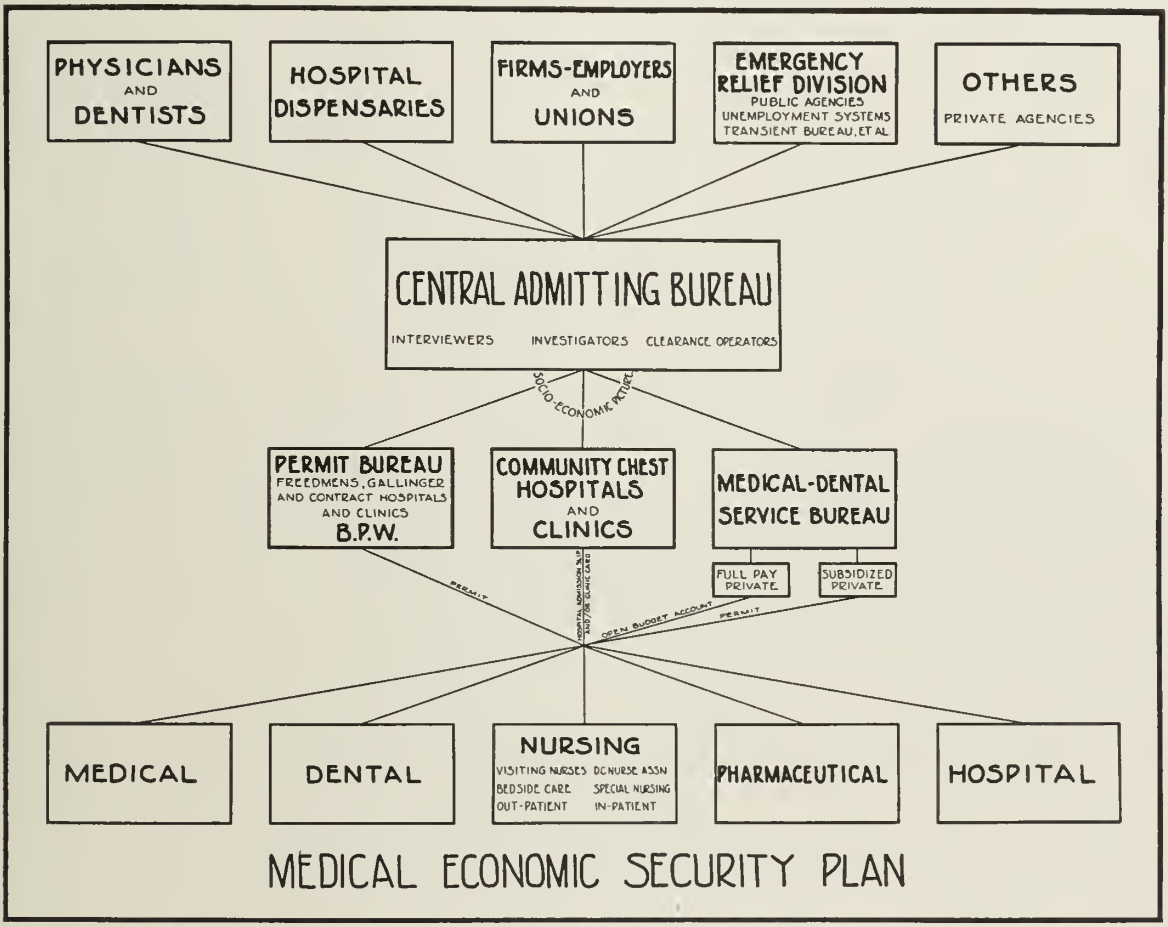

PHYSICIANS AND DENTISTS
HOSPITAL DISPENSARIES
FIRMS-EMPLOYERS AND UNIONS
EMERGENCY RELIEF DIVISION
PUBLIC AGENCIES
UNEMPLOYMENT SYSTEMS
TRANSIENT BUREAU, ET AL
OTHERS
PRIVATE AGENCIES
CENTRAL ADMITTING BUREAU
INTERVIEWERS
INVESTIGATORS
CLEARANCE OPERATORS
SOCIO-ECONOMIC PICTURE
PERMIT BUREAU
FREEDMENS, GALLINGER AND CONTRACT HOSPITALS AND CLINICS
B.P.W.
COMMUNITY CHEST HOSPITALS AND CLINICS
MEDICAL-DENTAL SERVICE BUREAU
FULL PAY PRIVATE
SUBSIDIZED PRIVATE
PERMIT
HOSPITAL ADMISSION SLIP AND/OR CLINIC CARD
OPEN BUDGET ACCOUNT
PERMIT
MEDICAL
DENTAL
NURSING
VISITING NURSES
DC NURSE ASSN
BEDSIDE CARE
SPECIAL NURSING
OUT-PATIENT
IN-PATIENT
PHARMACEUTICAL
HOSPITAL
MEDICAL ECONOMIC SECURITY PLAN

Diagram of the Medical Economic Security Plan of the Medical Society of the District of Columbia, Showing Particularly How the Central Admitting Bureau Acts as the Coördinating Center or the Clearing House for Patients of the Indigent and Low-income Groups, and also Where the Medical-Dental Service Bureau Fits into This Plan

(*j*) *Advantages of the Plan*

1. The plan relieves the physician or dentist of the time-consuming business of getting the necessary data to formulate a plan of payment for the patient. It puts the economic aspect of medical and dental practice on a business-like basis, relieving the professional man of the unpleasant relationship with patients.

2. The patient, dealing with a business organization and knowing that he has signed a contract for payment, will be much more apt to pay regularly on his account.

3. The patient learns how to budget the expense caused by illness or the prevention of illness, and when another illness arises will be familiar with the plan.

4. The doctor will be much more apt to keep his clientele intact since the patient not being in default will not find it necessary to go to other physicians or dentists for future illnesses.

5. Patients are permitted to maintain their self-respect since there is little likelihood of defaulting carelessly. Also they are much more willing to pay a small amount regularly to a business bureau than they are to a professional man since there is a tendency in the latter instance to consider a small payment belittling.

6. No interest is charged the patient and, therefore, he will have reason to understand that he is being rendered a service and not being exploited.

7. It is more likely that employers in general will

coöperate in helping their employees fulfill their contracts for the payment of medical and dental bills..

8. If the professions get squarely behind this plan they will go a long way to demonstrate the lack of necessity for health insurance such as is being agitated at the present time.

REPORT OF THE COMPENSATION, CONTRACT AND INDUSTRIAL MEDICINE COMMITTEE AND OF THE COMMITTEE ON MEDICAL ECONOMICS ON WORKMEN'S COMPENSATION PRACTICE*

A committee, consisting of the chairman of the Subcommittee on Workmen's Compensation of the Committee on Medical Economics and the chairman of the Compensation, Contract and Industrial Medicine Committee of the Medical Society of the District of Columbia, after much thought, including conferences with representatives of the insurance companies, have presented to the C. C. & I. M. Committee and the Committee on Medical Economics the following report with the unanimous endorsement of both committees.

1. It is desired to emphasize, what many of us apparently forget, that the law places upon the employer and the insurance company the responsibility for the medical and surgical care of the employee.

2. In accepting this responsibility and to protect themselves from possible damage suits, the employer and the insurance company must, in the opinion of our attorney, investigate as to the competency of the physician who attends the injured employee. This is one of the reasons for the insistence by the insurance companies on the employment of physicians who have been selected by them.

The insurance companies have listed the following qualifications for selection of physicians:

"1. They want physicians who can be depended on to make reasonably correct diagnosis.

2. To be fair both to the patient and the insurance company in the decision as to the time when the employee shall return to work.

3. To have a record of the minimum amount of infections following injuries.

4. To develop an office organization which makes them available for emergency treatment and for prompt information and for getting out reports promptly.

5. To be familiar with the routine of handling compensation cases.

6. To be competent and dependable on the witness stand as a result of experience with compensation work and traumatic industrial medicine and surgery.

7. To be coöperative in their dealings with the insurance companies.

8. To be competent to judge the degree of disability."

We recognize the reasonableness of these requirements which the employer and insurance company want and are in a position to demand. We further recognize that under the existing law free choice of physician by the patient in compensation cases rests entirely upon the courtesy of the employer.

In the words of the Committee of Adjusters, "the existing conditions will be greatly improved in many cases, if the physician will promptly communicate with the adjuster and discuss the situation with him. The Adjuster's inclination will be to permit the physician to continue with the case, if this is possible."

In this connection the adjusters wish us to state "that the individual adjusters have no authority to bind their respective companies."

The conclusions of your committee are:

1. That physicians desiring to do compensation work should equip themselves to meet the eight qualifications to which we have above referred.

2. That upon accepting this report you are recognizing the reasonableness of these eight qualifications.

Now comes the question as to whether there is anything which the Society can do to lessen the irritations which have developed and to establish definite standards for determining what is and what is not ethical conduct between physicians in disputes arising in the field of Workmen's Compensation and/or Industrial Practice. We suggest the following interpretations of the existing Code of Ethics to make it applicable to compensation and industrial medicine practice.

1. That posting in compensation practice be left to the employer or the Insurance Company and that such posting by physicians or their agents is unprofessional.

2. That solicitation directly or indirectly by physicians or their agents in compensation practice is unprofessional.

3. That a physician called to treat a patient injured in industry, and insured under the Workmen's Compensation Act, shall promptly and from time to time contact the adjuster of the company insuring the employer of the patient, making all suitable efforts to determine his identity in cases where this may be necessary, inform him of all the circumstances of the case and keep him posted on its progress. If, bearing in mind the qualifications of physicians doing this class of practice, upon which the insurance companies insist, the physician feels aggrieved by any action of the company, he may present the matter to the C. C. & I. M. Committee, which shall make every effort to effect a satisfactory adjustment and to safeguard the interests of the member making the appeal.

4. That any physician notified by employers and/or insurance companies to examine and/or treat an injured employee already under the care of another physician

---

* Accepted and approved by the Society, February 6, 1935. Report published for the information and guidance of all concerned.

can do so only after a full and frank discussion with the physician in charge to the end that he, the physician in charge, shall completely understand the situation; to do otherwise is unprofessional. If, following this discussion, the physician in the employ of the insurance company assumes the treatment of the patient, and the physician originally in charge feels himself aggrieved, he may appeal to the C. C. & I. M. Committee; and at hearings held by this committee in such cases the physician in the employ of the insurance company must be prepared to justify his action, or be liable to citation to the Committee of Censors under charges of unprofessional conduct.

5. That the Compensation, Contract and Industrial Medicine Committee adopt a fee table for compensation work, to be changed from time to time in its discretion for acceptance by the Deputy Commissioner and the insurance companies; that when, as and if this is done, it is unprofessional for physicians to charge below these rates for compensation work.

PROCEDURES IN COMPENSATION PRACTICE*

1. Reports on official forms must be made within twenty (20) days of the first treatment. Such forms should be kept on hand in the office and may be secured from the Deputy Commissioner.

2. The law as it now stands imposes upon the employer and/or the insurance company the provision of medical care for the injured, i.e., the selection of the physician.

3. Prompt and immediate communication with the representative of the insurance carrier will frequently result in a continuance of the physician's attendance upon the employee, by mutual agreement, even when the physician is not a panel member of the insurance company. Information as to the name and telephone number of the interested adjuster can be obtained at the office of the Medical Society of the District of Columbia.

4. The Compensation, Contract and Industrial Medicine Committee cannot entertain complaints of members who have not fulfilled the stipulations of paragraph 1.

COMMITTEE ON PUBLIC INFORMATION

PROPOSAL FOR EMPLOYMENT OF EXECUTIVE SECRETARY

In a report before the Society on the evening of February 6, 1935, in which the Committee's activities in placing health articles in the press, the giving of radio talks and the organization of a speakers' bureau were outlined, the following recommendation was made:

". . . In view of the larger place this Society should fill in our socio-economic structure and in view of the fact that its desirable activities have already demanded more than its practicing members should give, that the Society should have for itself a full-time executive secretary on a salary commensurate with his responsibilities and capabilities. He should have to be a man of insight and familiarity with the medical attitude; he should possess tact, executive ability and energy. He would engage in all the manifold recurring activities of and for the committees. . . . We feel a committee should inquire into the budgetary possibilities, the Society's need for such a change, the availability of candidates suitable for the office and what constitutional changes would be necessary, if any, to precede this alteration in our administrative structure. . . .* That the Chair ask the Committee on Medical Economics to investigate the desirability and possibility of making provision for a full-time executive secretary for the Society and that the committee be asked to bring in its report, if at all possible, to the next business meeting of the Society."

The following committee was appointed:

Arthur C. Christie, *Chairman*
Herbert P. Ramsey
Wallace M. Yater

SPEAKERS' BUREAU

Under the direction of Dr. Don S. Knowlton, and the Committee on Public Information there has been organized a corps of 75 speakers from members of the Society "representing all fields of medicine, who have agreed at the request of the Speakers' Bureau to be enlisted in a sort of flying squadron whose members may be deployed where there may be need of their services. Any lay organization or smaller Medical Society in or near Washington may, upon application to the Bureau, obtain the services of a man able to speak in public on a medical subject." As a result of the activities of the committee the following Y. M. C. A. program of talks was arranged:

February 1: "X-ray—The Searchlight of Medicine." Claude Moore, M.D.
February 8: "Fractures." Thomas Madden Foley, M.D.
February 15: "Bacteria and Their Relation to Disease." Robert A. Keilty, M.D.
February 22: "Care of the Skin." Joseph V. Kennedy, M D

ACTIVITIES OF SECTIONS

SECTION ON NEUROLOGY AND PSYCHIATRY

Minutes of meeting held December 6, 1934

Members present included Drs. Alice H. Keissling, Joseph L. Gilbert, Roger S. Cohen, Antoine Schneider, Walter Freeman, H. H. Schoenfeld, Robert Scott Lamb, H. D. Shapiro, J. P. H. Murphy, Mary O'Malley and 26 visitors. The chairman, Dr. Cohen, called attention to the recent demise of a member of the Section, Dr .Cornelius DeWeese.

---

* From the Committee on Compensation, Contract and Industrial Medicine.

* Recommendation adopted by action of the Society.

1. SUPERIOR PULMONARY SULCUS TUMOR. REPORT OF TWO CASES. **Antoine Schneider, M.D.**

The recognition of this syndrome belongs to the roentgenologist, Pancoast having reported 2 cases, following this up later by a Chairman's Address including 7 cases. The clinical symptoms consist of pain in the shoulder, weakness of the hand, dullness to percussion at one pulmonary apex and the Horner syndrome. Differential diagnosis consists in the ruling out of cervical ribs, cervical pachymeningitis, brachial neuritis, and inflammation of the brachial plexus. The X-ray film is characteristic, showing a small circumscribed tumor at the apex of the lung with erosion of the head of theribs and sometimes the articular and transverse processes or even the body of the vertebrae. No metastasis takes place. Only 2 or 3 patients have been operated on, and there have been no necropsies. The patients live for about 12 to 18 months after development of symptoms. Other growths in this area show no erosion of the ribs or vertebrae. The cause is in doubt. The tumor lies close to the spinal nerves proximal to the sympathetic trunk and distal to the common trunk. It is evidently of epithelial origin, although possibly some of the chromaffin tissue or an abnormal development of the embryonic fifth pharyngeal pouch may be causative. The treatment has been carried out in palliative fashion with X-ray, and the surgical results are poor. Two cases have been seen at Gallinger Municipal Hospital during the past year.

Case 1: A woman, 65 years of age, complaining of pain in the right shoulder and the arm, presented wasting of the hand muscles and anesthesia along the inner side of the arm, with a Horner syndrome. X-ray films showed a tumor near the second thoracic vertebra and erosion of the first and second ribs.

Case 2: A white man, aged 35 years, complained of neuritis in the right shoulder beginning in February, 1933. At first this was on the posterior part, but later it became anterior, and for 2 months he had noticed no sweating in the right hand. There was pain in the axilla with hyperesthesia in the suprascapular region. Examination showed analgesia in the second and third thoracic dermatones with dryness of the arm and a local pilomotor response. X-ray showed erosion of the heads of the first, second and third ribs, of the bodies of the second and third vertebrae and a soft mass at the pulmonary apex. The patient received 16 deep X-ray treatments in 2 months with later improvement. Later he was operated on at Johns Hopkins Hospital for a mediastinal tumor, some of which was removed. He had a stormy convalescence with collapse of the lung and a persistent sinus, lost much weight and now shows atrophy of the muscles of both hands. He requires morphine almost constantly.

In discussion, **Dr. L. S. Otell** showed the films from Case 2. These cases are often thought to be mediastinal tumors of osteogenic or metastatic type but are occasionally like fibroid tuberculosis. The erosion of the posterior parts of the ribs usually indicates the correct diagnosis.

Dr. Walter Freeman projected slides of the tumor showing a scirrhous type of growth and indicating masses of squamous epithelial elements. He had reported in another journal the first case that came under Pancoast's observation.

Dr. H. H. Schoenfeld decried the use of surgery in the treatment of these tumors.

Dr. Schneider closed by saying that the prognosis was absolutely bad; that this case had lasted the longest period and raised the question of the cause of death in these cases, since the tumors are always small, do not metastasize, are not associated with much cachexia and possibly the chromaffin system had something to do with it.

2. THE AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY. **Walter Freeman, M.D.**

The American Board of Psychiatry and Neurology was formed by the coöperation of the American Psychiatric Association, the American Neurological Association and the Section on Nervous and Mental Diseases of the American Medical Association. The Board was incorporated in October, and a committee on credentials and examinations is at present working on requirements, application blanks, examination schedules, etc. The Board grants a certificate but does not pretend either to grant a degree or to grant a license to practice neurology and psychiatry. The certificate is designed to indicate its possessor as a qualified neurologist or psychiatrist, or both, and will be particularly useful in securing admission to certain societies, election to the faculties of certain schools and in qualifying the expert witness in court. It is proposed to grant 2 certificates in neurology and psychiatry respectively with a combined certificate for those who are qualified in both fields. Medical graduates after 1934 will be required to spend a year in general internship, followed by 3 years of specialized training in hospitals, laboratories, clinics, etc., and 2 further years in practice limited to that particular field. Then they are required to pass a searching examination. Individuals who have already graduated will be divided into 2 groups, (1) established specialists who will receive certificates upon application, provided their records are satisfactory to the Board, and (2) others who have not yet proved themselves and will be required to take examinations. The examinations are both written and practical and designed to test the fitness of the candidate in the field of his choice.

In discussion, **Dr. Robert Scott Lamb** reminisced over the formation of the first board, the American Board for Ophthalmic Examinations, and said that it was evident that one would have to take in a lot of established specialists without examination. At first the advantage to be expected was only academic credit and still in ophthalmology there was no protection and the public was unable to tell the difference between oculists, ophthalmologists and optometrists. He felt that legislation was needed to protect the public from untrained competition.

3. TRANSVESTITISM IN A MAN. REPORT OF CASE. (LANTERN DEMONSTRATION.) **Alice Heyl Kiessling, M.D.**

The patient reported was a man who wanted to be a woman, starting off with an obsessive, later a compulsive neurosis, which was finally cured or at least relieved by psychoanalysis. There are a few instances of this condition in classic literature and several medical histories, notably in the works of Krafft-Ebing and Freud. The condition develops in a rather peculiar type of personality and the psychotherapy also helps to disclose the mechanisms. The patient was a man, 32 years of age, who presented no physical abnormality, was alert and intelligent, rather untidy but decidedly not feminine in type. He expressed a desire to get well. The onset was in 1924, after his fiancee married another man, with pains everywhere, anxiety, difficulty with concentration, inaccuracy. He was on the defensive, lied out of situations and got himself into trouble, was considered generally a queer duck. Quite frequently he would buy women's apparel. In 1913 there was an organized obsession following a dream of being raped, that he wished to be castrated. He dressed himself in private in a red wig and high heels, posed as a woman, believed himself to be a woman, and thought and felt as a woman. He drew many pictures of himself as he appeared dressed as a woman in his dreams. There were definite schizoid and paranoid elements in the personality. He was brought up on a ranch in the southwest, the second of 3 children, with a very domineering mother, too much attached to her son, and a rather careless father who did not wish to be bothered. He observed cattle mating while he was a young boy and early in life centered his attention upon women's clothing. He was kept in dresses and curls until 3, wore his mother's shoes, remembered vividly a bright red dress on his mother, and at 5 he became jealous of his small sister playing with other girls. He wore a girl's disguise and at the age of 12 bought his first corset. He became uneasy over the problem of masturbation and was relieved by wearing girl's clothes, because it was more difficult to reach his penis. He despaired of being like his father. However, as he grew older he came to repress the trend and until 20 years old he was better, played games and mixed well with others. He was quite attached to boys but was not homosexual; Army and college proved a challenge to masculinity and he developed considerable tension. However, he won success by playing female rôles in college dramatics, but underneath was the wish to be a woman. The conflict resulted in many distressing symptoms and dizziness. The following 7 years he resorted more and more to transvestitism, thought that women should accept him as a woman and on this account developed a conflict. After 3 years of treatment, during which he kept a complete record of his activities, the physical and mental symptoms were largely overcome and he was more or less reintegrated. The individual starts off by having both homo- and heterosexual trends, the heterosexual usually triumphs, the homosexual trends are sublimated in extragenital social pursuits such as athletics and creative activities. The homosexual individual is essentially a retarded one showing lack of maturation. It is the problem of the psychoanalyst to find out the inhibiting factors and remove them. In this case, the fear of the father seems to cause identification with the mother and the wish for castration to indicate his desire to be like a girl and, therefore, desirable to his father. This patient dreamed he had female organs and suffered many assaults. The removal of his appendix and his tonsils had an effect on him almost equivalent to complete castration, and when his testicles were injured in playing football, he suffered very severely. He dressed like his mother and often wished for a child. One of his drawings, when placed upside down, was a rather satisfactory image of a pregnant uterus with a cloaca. This individual showed a female type of psychology, was definitely masochistic, with pains in different parts.

In discussion, **Dr. Roger S. Cohen** asked what paranoid symptoms there were. He had seen a patient 5 years ago at the age of 11 years whose father was lazy and turned the boy over to his mother for education. While young this boy exhibited much interest in women's clothes, which his mother encouraged, he dressed and powdered, used lipstick, wore his hair long and was shielded by his mother from the knowledge of masturbation or sex in general. Finally his mother read the bible concerning the topic of homosexuality and sent him to a military school. There the boy changed, became active in sports and showed no further transvestitism. Relapse may occur. Dr. Cohen asked whether a benign depression might not bring about many of the symptoms presented by Dr. Kiessling's patient, particularly since the patient became more obsessive during the depression.

Dr. Antoine Schneider asked whether the patient had read up on the female anatomy; Dr. Kiessling replying that the patient had not done so and had the vaguest ideas concerning anatomy in general with many cloacal ideas.

Dr. Mary O'Malley remembered a number of similar cases in psychotic individuals but these could not be worked out. One particular woman wore a man's uniform and pulled her skirts up when the uniform was not allowed, because of delusional patients. When she finally went home her father brought her men's clothes. Another patient makes her own clothes from sheets, cuts her hair short, wears trousers and a long overcoat but a woman's hat. Some of these patients are exhibiting their frustrations resulting from mothers telling stories of sex life. Most of them are praecoxes who have no interest in sex life and often imagine themselves turning into men.

Dr. J. L. Gilbert stated that many patients during the acute period of their psychoses think they are turning into individuals of the opposite sex. All people are essentially bisexual; there is some question whether mental hygiene should accomplish much. Should the patient marry?

Dr. Walter Freeman asked whether one of the drawings of the patient in which he was about to be raped by a colored male was an actuality or a dream, indicating that there would be a great disappointment in store for the colored man. Dr. Kiessling reported that this was actually a dream.

Dr. Alexander Simon queried if the patient knew no anatomy how he could draw such a perfect plan of the pregnant womb upside down and also indicate in another picture the various muscular layers of the uterus. In spite of the 9 trees in this picture representing 9 months the patient must have relied upon a physician for a great deal of interpretation.

Dr. Robert Scott Lamb emphasized another point in which by particular glandular experiments one can change a rooster to a hen and back again. Such patients should be photographed to show the structural background; many individuals were borderline cases who could go either way. Dr. Lamb also animadverted to the pansy show at the Hotel Richmond in New York City and a number of other interesting exhibits, a list of which was in his possession.

In closing, **Dr. Kiessling** said that the patient had definite delusions of persecution and that there was more anxiety than depression, no heterosexual experiences or desires, but that he had recently developed erections with phantasies concerning women and was becoming better adjusted to women. In the drawing mentioned by Dr. Simon she could establish no association with the muscular layers of the uterus as a container and she doubted whether marriage would be successful in spite of the fact that a urologist had pronounced the testicles normal.

Joint Meeting of the Ophthalmological and Otolaryngological Sections of the Baltimore City Medical Society and the Medical Society of the District of Columbia

1718 M Street, N.W.

February 15, 1935:

1. "Pits or Holes in the Optic Disk." William Holland Wilmer, M.D.
2. "Something about the External Nose." Walter A. Wells, M.D.
3. "Treatment of Ocular Injuries." Oscar Wilkinson, M.D.
4. "Septic Meningitis." Frederick C. Schreiber, M.D.

SOCIETIES WITH LIMITED MEMBERSHIP

The George M. Kober Medical Society

January 21, 1935:

Meeting at the Washington Golf and Country Club.

1. "The Incidence of Syphilis in Washington." Russell J. Fields, M.D.
2. "Retention of Teeth Following Fracture." Otto Wendt, D.D.S.

The newly elected officers are:

Ernest E. Hadley, *President*
Herbert H. Schoenfeld, *Vice President*
Howard L. Smith, *Secretary*
Don Johnson, *Treasurer*

Osler Medical Society

January 21, 1935:

Dr. Montgomery Blair, host.

1. "Meningitis in Children from a Study of 224 Case Records." E. Clarence Rice, M.D.
2. "Case Report: Urethral Calculus." James M. Fadeley, M.D.

The officers are as follows:

John Minor, *President*
Fred R. Sanderson, *Vice President*
E. Kirby Smith, *Secretary-Treasurer*

PROGRAM, SOCIETY ACTIVITIES

Wednesday, February 27:

1. "The Relation of the Coroner and the Physician." A. Magruder MacDonald, M.D.
2. "The Cause of Death." Wallace M. Yater, M.D.
3. "The Doctor in His Business Relations." Frederick A. Fenning, Attorney-at-Law.

Wednesday, March 6:

Stated Meeting. Election of members of the Nominating Committee; election of new members; reports of officers, etc.

Wednesday, March 13:

Joint Meeting with the Section on Neoplastic Diseases, Fred O. Coe, M.D., chairman; Isidore Lattman, M.D., secretary; Truman Abbe, M.D., chairman, Program Committee.

"The Treatment of Cancer of the Breast." Douglas Quick, M.D., Attending Surgeon, General Memorial Hospital, New York City.

Dr. Quick, in his years of service in the General Memorial Hospital, has had a great opportunity to see and study the surgical and radiotherapeutic aspects of treatment of neoplastic diseases. The report of his deductions should be most valuable.

Wednesday, March 20:

Presidential Address.
Reception to Dr. and Mrs. George C. Ruhland.
Buffet Supper.

Wednesday, March 27:

Members of the resident and consulting staffs of Mount Alto Hospital will present a "Symposium on Intrathoracic Tumors."

1. "Incidence and General Considerations." Grady O. Haynes, M.D. (10 minutes)
2. "X-ray Diagnosis." Arthur C. Christie, M.D. (10 minutes)
3. "Bronchoscopy." Daniel B. Moffett, M.D. (10 minutes)
4. "Pathology of Intrathoracic Tumors." Robert A. Keilty, M.D. (10 minutes)
5. "Clinical Considerations." Roy D. Adams, M.D. (10 minutes)
6. "Surgical Treatment." Harry H. Kerr, M.D. (10 minutes)
7. "X-ray treatment." Edwin A. Merritt, M.D. (10 minutes)

This survey, based on case studies at Mount Alto Hospital, represents an unusual presentation. The Society is fortunate in having this opportunity.

Wednesday and Thursday, May 1 and 2

Annual Scientific Assembly

Mark these dates on your calendar. Complete program with next issue of the Annals for 2 full days of papers, dry clinics, exhibits, etc. Don't forget the complimentary Mayflower Luncheon and the Thursday night Banquet with entertainment.

PROGRAM SECTION ON INTERNAL MEDICINE

Friday, March 1:

1. "Danger Signals. On the Advantages of a Nervous Breakdown and a Few Neurotic Symptoms in Certain Men under Forty Years of Age." Walter Freeman, M.D.
2. "Certain Metabolic Products of the Hemolytic Streptococcus." M. V. Veldee, M.D., National Institute of Health, United States Public Health Service.

B. W. Leonard, M.D.
Chairman

A. J. B. Connolly, M.D.
Secretary-Treasurer

THE GEORGE WASHINGTON UNIVERSITY

SCHOOL OF MEDICINE

Third Annual Postgraduate Clinic, February 23, 1935

This year a series of clinics and demonstrations will be held at Garfield Memorial Hospital from 9 A.M. to 3 P.M. In the School of Medicine, from 3 to 5 P.M., there will be laboratory demonstrations. At the Mayflower Hotel, 7:30 P.M., there will be held the annual banquet of the George Washington University Medical Society.

The program of clinics at Garfield Memorial Hospital include:

"Uterine Cervical Stump Pathology," Henry L. Darner, M.D.; "Head Injuries," Harry H. Kerr, M.D.; "Some Unusual Nephropathies," Henry C. Macatee, M.D.; "Cancer of the Prostate," Francis R. Hagner, M.D.; "The Management of Unusual Fractures of the Femur," Custis Lee Hall, M.D.; "Cystoscopic Demonstrations," Homer G. Fuller, M.D.; Alan J. Chenery, M.D., Charles P. Howze, M.D.; "Ventricular Thorotrast," Herbert H. Schoenfeld, M.D.; "The Routine Treatment of Gonorrhea in Women (the Non-Antiseptic Method)," Bernard Notes, M.D.; "Obstetrical Analgesia," Howard F. Kane, M.D.; "Methods of Immunization Against Poliomyelitis," Earl B. McKinley, M.D.; "Surgical Edema," Charles S. White, M.D.; "Endocrinology in the Treatment of Functional Disorders of the Female," Jacob Kotz, M.D.

Among the laboratory demonstrations will be noted: paraldehydebenzyl alcohol hypnosis; post pituitary hormones; colorimetric methods for Vitamin C determination; organic microanalysis.

The profession is invited to attend these scientific demonstrations.

Third Smith-Reed-Russell Lecture

FEBRUARY 19, at 11 A.M., Hall A, Department of Medicine, George Washington University. "Mycotic Infection of the Lung." Thomas R. Boggs, Associate Professor of Medicine, Johns Hopkins University.

Public Lectures

Lectures on Modern Physics will be given in Room 39, Corcoran Hall, 725 Twenty-first Street, N. W., by Dr. George Gamow, Visiting Professor of Theoretical Physics at the George Washington University. Dr. Gamow, the pioneer in the theoretical investigation of the structure of atomic nuclei, is the author of "Constitution of Atomic Nuclei and Radioactivity."

March 8:	"The Atomic Nucleus."
March 22:	"Artificial Transformations of Elements."
April 5:	"The Structure of Stars."
May 3:	"Cosmic Rays."

The public is invited.

RADIO BROADCASTS*

February 5: "The Coroner." A. Magruder MacDonald, M.D.
February 12: "A Brief Discussion of Mastoid Disease." The Old Family Doctor.
February 19: "Pyorrhea." George Albert Smith, D.D.S.
February 26: "Burns." William Wiley Chase, M.D., assisted by Mr. H. A. Fried, Superintendent, Fire Alarms of the District of Columbia.
March 5: "Do you Have Hay Fever?" Harry S. Bernton, M.D.

---

* Arranged by the Committee on Public Information, Dr. Herbert P. Ramsey, chairman; Dr. R. Lyman Sexton, subchairman.

COMMISSION ON LICENSURE, DISTRICT OF COLUMBIA

Summary of Licenses, Registrations 1929–1934

CLASS	WHITE		COLORED		TOTAL
	M	F	M	F	
†(1) M.D.'s (Basis of previous license or registration)	1,024	57	201	6	1,288
(3) M.D.'s (By examination)	199	10	15	3	227
(6) M.D.'s (By reciprocity)	69	2	14	—	85
					1,600
Osteopaths	1	2	—	—	3
Osteopaths and Surgeons	3	—	—	—	3
‡(2) (Basis of previous practice)					
Osteopaths	26	17	2	—	45
Osteopaths and Surgeons	13	2	—	—	15
Chiropractors	129	68	47	16	260
Naturopaths	28	19	—	—	47
Naprapaths	1	—	—	—	1
(4) M.D.'s (Borderline reciprocity certificates)	31	3	11	—	45
M.D.'s (Federal registered physicians)	508*	11*			519
§(5) M.D.'s (Certifications to other jurisdictions)	83	1	24	—	108
Osteopaths	1	—	—	—	1
(7) Midwives		3		6	9

* No statistics as to race.

† There are 1,600 licensed physicians in the District of Columbia with a Census Bureau population estimate on July 1, 1934, of 497,000; the ratio is 1 licensed physician to 310 inhabitants.

‡ This tabulation shows that no osteopaths nor chiropractors, etc., have applied for examination since adoption of the Healing Arts Practice Act in 1929.

§ The law provides that the Commission has the right to refer candidates applying through reciprocity to the Board of Examiners in Basic Sciences for examination, should it appear advisable.

ABSTRACT OF PAPER READ BEFORE THE SOCIETY

(*Continued from page 48*)

nea on slight exertion, and hemoptysis, but who are not showing at the time of operation, edema, collection of fluid in the serous cavities, râles in the chest, or evidence of active infection.

In summary, it may be said that complete ablation of the normal thyroid gland for the treatment of heart disease is still an experimental procedure. No patients, even those in the series reported by the original authors, have been followed as yet (December, 1934) more than 2 years. The criteria for the selection of cases are uncertain, the difficulties of the technic are considerable, and the degree of benefit in the individual case may be at first obscure. Despite these difficulties, the benefits in some cases are incontrovertible, and comfort and a happier and longer life can sometimes be given to a small number of patients faced with invalidism or almost certain death.

Joseph Hammond Bryan, M.D., a pioneer of his specialty in otolaryngology, a member of the Medical Society of the District of Columbia since October 5, 1886, died on February 3, 1935. He was born, July 4, 1856, in Washington. From 1880 to 1885 he was Assistant Surgeon, United States Navy, during the late hostilities, serving as Major in the Medical Corps of the United States Army. Later he attained the grade of colonel in the United States Army Organized Reserves. Dr. Bryan served in hospitals acquiring perfection for his later work, in Berlin, Vienna and Paris.

On April 27, 1932, he last addressed this Society reading a paper, "The History of Laryngology and Rhinology and the Influence of America on this Specialty," which was replete with reminiscences of his European work. Among his Society memberships were the American Medical Association, Washington Academy of Sciences, the Philosophical Society, American Laryngological Society, Columbia Historical Society, American Otological Society. He was also a member of the Cosmos, Metropolitan and Chevy Chase Clubs.

Dr. Bryan is survived by three sisters: Misses Elizabeth and Eleanor Bryan, of this city, and Mrs. Frank S. deC. Sullivan, of New York.

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV MARCH, 1935 NUMBER 3

THE MEDICAL MANAGEMENT OF URINARY LITHIASIS*

CHARLES C. HIGGINS, M.D.
Cleveland Clinic, Cleveland, Ohio

Investigations dealing with the experimental production and solution of urinary calculi have been reported in previous communications (Higgins, 1933 and 1934).

Urinary calculi developed in a high proportion of albino rats which were maintained on a diet deficient in Vitamin A. When this deficiency in the diet was continued for a period of 250 days, vesical calculi developed in 85 per cent of the experimental animals, and renal calculi developed in 42 per cent. The calculi thus produced were light brown, spherical, and varied in size from 0.5 to 8 mm. in diameter. They were composed chiefly of calcium phosphate, and traces of carbonates and a small amount of mucoid substance were present. Neither oxalates or uric acid were detected.

Three constant findings which might be associated with the formation of calculi were present in these experimental animals. They were (1) keratinization of the epithelium of the genito-urinary tract; (2) the presence of infection in the genito-urinary tract; and (3) the presence of alkalinuria.

The keratinization of the epithelium of the genito-urinary tract was noticed after the diet had been deficient in Vitamin A for a period of from 8 to 10 weeks. This finding was not confined to the genito-urinary tract, but involved other mucous membranes also.

This experimental finding is in accordance with the clinical observations of Wilson and DuBois, who in 1923 noticed the presence of keratinization of the epithelium of the trachea, bronchi and other mucous membranes in infants who died as the result of infection associated with Vitamin A deficiency. Similar observations were made by Mori, Blackfan and Wolbach, and others.

Infection in the genito-urinary tract developed in a large proportion of rats maintained on a diet which was deficient in Vitamin A for a long period of time. Infection of the bladder occurred usually after 30 days, and renal infection occurred after a period of from 60 to 90 days. When the experiment had progressed from 200 to 250 days, infection of the bladder was present in 72 per cent of the rats, and in 42 per cent of these a coexisting renal infection was present.

Streptococci, staphylococci, and mixed cultures were the organisms found most frequently.

Alkalinuria was a constant finding when the rats were maintained on the diet deficient in Vitamin A. By the addition to the diet of Vitamin A alone, the urine reaction became acid.

SOLUTION OF URINARY CALCULI

It has likewise been demonstrated that, by the addition to the diet of Vitamin A alone, the formation of calculi can be prevented. In order to determine whether stones which already were present might be dissolved by the administration of Vitamin A, observations were made on 30 rats in which bladder or renal calculi were present. Except for the addition of cod liver oil, the diet remained the same as that by which the calculi had been produced. In every instance the stones disappeared during periods which varied from 50 to 107 days.

---

* Read before the joint meeting of the Washington Urological Society and the Medical Society of the District of Columbia January 9, 1935.

In those rats in which a pronounced infection was present, a longer period of time was required for the solution of the calculi than was required in those animals in which an infection was not present. Thus, by experimental investigations, we proved that if white rats were maintained on a diet deficient in Vitamin A for a sufficient period of time, urinary calculi could be produced; and that, by the restoration of Vitamin A to the diet, these calculi could be dissolved and made to disappear.

Application of Above Findings to Clinical Cases

During the past year, a selected group of patients, in whom urinary calculi were present, has been treated by means of a dietary regimen in order to ascertain whether observations made in the experimental laboratory might be applied to clinical cases.

It is obvious that all patients suffering from urinary calculi cannot be treated by conservative measures. If the calculus is producing a definite obstruction and thereby causing further damage of the renal parenchyma and impairing the renal function, it may not be advisable to temporize with medical treatment when by surgical intervention the obstruction may be relieved immediately and thus prevent the further injury of the kidney tissues.

During the past year, dietary treatment has been used in the following groups of cases:

1. Those in which the patients refused to have the calculus removed by surgery;
2. Those in which calculi were present in one of the calices of the kidney, but were not producing obstruction;
3. Those in which small calculi were present in the renal pelvis but were not producing obstruction;
4. Those in which bilateral renal calculi were present but in which surgical intervention was not deemed advisable;
5. Those in which we desired to prevent the recurrence of calculi following removal of stones by operation;
6. Those in which calculi were of sufficient size to require treatment of nephrectomy;
7. Those in which calculi were passed at frequent intervals but could not be demonstated roentgenographically; and
8. Those in which elderly patients who had fractures or osteomyelitis were required to remain in a recumbent position for a long period of time.

Before a diet may be prescribed, certain urologic observations are essential. Our procedures are as follows:

A roentgenogram of the kidneys, ureters, and bladder is first made to determine whether or not a calculus is present. This is followed by an intravenous urogram to determine the location of the calculus in the kidney, and to determine whether the calculus is obstructing the passage of urine from the kidney itself. The urogram may also reveal the presence of a non-opaque stone and is of additional value in indicating an estimation of the function of each kidney.

A cystoscopic examination is then made to ascertain the function of each kidney by means of the phenosulphonephthalein test. Samples of the urine from each kidney and from the bladder are taken for the determination of the hydrogen ion concentration, bacteriologic culture and routine study.

Blood chemistry studies are also of utmost importance. Determinations of blood urea, creatinin, sugar, uric acid, calcium, phosphorus and phosphatase are made in each case. These studies are of extreme importance in cases in which calculi of the uric acid type are present and also in those in which changes in the blood calcium and blood phosphorus may indicate the presence of parathyroid disturbances.

If calculi have been passed previously and the specimen is available, it is examined in our chemistry laboratory.

The patient is hospitalized for a period of from 3 to 7 days in order that he may grasp the full significance of the diet, that he may have a thorough understanding of the principles involved, and that he may be instructed regarding the routine to be followed after he has left the hospital. Our dietitian visits the patient daily to explain the details of the diet and to furnish and discuss sample menus. With this instruction, the patient, within a short period of time, can prepare his meals with a remarkable degree of accuracy.

As a general rule, in the absence of infection, the high Vitamin A, acid-ash diet is sufficient to render the reaction of the urine strongly acid; but in patients in whom an infection such as the proteus organism is present, an acidifying agent must be added to the prescribed diet. This is usually given in the form of sodium acid phosphate in capsules or ammonium chloride in enteric-coated tablets. It is important that the pH of the urine be kept between 4.9 and 5.4, and the medication necessary to maintain this level can be determined while the patient is in the hospital. The pH determinations are made daily under similar conditions. The first morning specimen of urine is discarded, and the specimen voided just before breakfast is sent to the laboratory for examination. By this routine the effect of awakening respiratory changes on the pH of the urine are eliminated and the effect of the alkaline tide is avoided.

Just as the blood sugar determination is of value in the management of a patient with diabetes, the determination of the pH of the urine is of value in the management of a patient with urinary lithiasis. In each case, also, the patient must rigidly follow his prescribed diet. The patient is instructed concerning the method for making his own pH determination and a very simple, inexpensive apparatus* may be procured for this purpose. The patient makes the determination daily and presents a chart to his physician at regular intervals. In this way the physician can determine whether the dosage of sodium acid phosphate or of ammonium chloride must be increased or decreased. Consultation and advice from the family physician is required frequently, and the patient should report for observation at regular intervals. The diet and medication must be followed exactly without any alteration, unless the physician advises some change.

Clinical Observations

Since these clinical investigations have been undertaken, it has been a routine procedure at the Cleveland Clinic during the past 2 years to prescribe an acid-ash diet high in Vitamin A in all cases in which urinary calculi have been removed. Other therapeutic measures such as eradication of renal infection, or elimination of stasis in the urinary tract have not been neglected.

During this time, only 1 patient has had a recurrent calculus following the removal of a stone from the lower portion of the right ureter. An associated infection and hydronephrosis of the right kidney were also present in this case. Following the operation, the patient neither followed instructions nor reported for postoperative therapy, and 1 year later a large calculus was present in the pelvis of the right kidney.

From our observations thus far, we are most optimistic regarding the efficacy of this regimen as a prophylactic measure against the recurrence of urinary calculi.

End Results

At the present time, we have a series of 21 cases in which renal calculi have undergone complete solution. In this series of cases stones have been present which varied in size from a small calculus in a calyx of the kidney to large stones in the kidney pelvis.

In a larger group of patients who have been placed on this dietary regimen, there has been a definite diminution in the size of the calculi, but insufficient time has elapsed for complete disintegration to take place.

In a group of 11 patients, all of whom happen to be physicians, the histories state that calculi had been passed at frequent intervals. After the institution of medical treatment, all of these patients have been free from symptoms for a period of 18 months. Although this series of cases is too small, and insufficient time has elapsed to permit definite conclusions to be drawn regarding the clinical application of this method, the outlook for the medical treatment of urinary calculi seems exceedingly hopeful in selected cases in which urinary calculi are present and in the prevention of recurrent formation of stones following the removal of calculi.

---

* We recommend the apparatus manufactured by the LaMotte Chemical Products Company.

BIBLIOGRAPHY

Blackfan, K. D., and Wolbach, S. B.: Vitamin A Deficiency in Infants; Clinical and Pathological Study. J. Pediat., 1933, **3**, 679.

Higgins, C. C.: The Experimental Production of Urinary Calculi. J. Urol., 1933, **29**, 157.

Higgins, C. C.: The Experimental Production of Urinary Calculi in Rats. Urol. & Cutan. Rev., 1934, **38**, 33.

Mori, S.: Change in Para-ocular Glands Which Follow the Administration of Diets Low in Fat-Soluble A; Effect of Same Diets on Salivary Glands and Mucosa of Larynx and Trachea. Bull. Johns Hopkins Hosp., 1922, **33**, 357.

Wilson, J. R., and DuBois, R. O.: Report of a Fatal Case of Keratomalacia in Infant, With Postmortem Examination. Am. J. Dis. Child., 1923, **26**, 431.

Omentopexy in Portal Cirrhosis of the Liver with Ascites. A Review of Twenty-three Cases.—The value of omentopexy in portal cirrhosis with ascites has long been a matter of controversy. By omentopexy is meant the Talma-Morison operation with its various modifications. Strikingly contradictory conclusions as to its efficacy are found in the literature. It has seemed worth while, therefore, to review the cases operated on at this hospital.* . . . . The habitual use of alcohol in 43 per cent of cases agrees with the reports of other writers. In a recent review of statistics from Europe and North America, Fiessinger finds it held responsible in 46–60 per cent of cases. . . . .

Conclusions

(1) Twenty-three cases of portal cirrhosis of the liver with ascites on whom omentopexy had been performed have been studied. Follow-up results were obtained in twenty-two cases. (2) Two cases, or 9 per cent, were classed as "symptom-free"; seven cases, or 32 per cent, as "improved"; and thirteen cases, or 59 per cent, as "unimproved." (3) The average age of the "symptom-free" group was nine years less than that of the whole group and fifteen years under that of the "unimproved" group. (4) Both "symptom-free" cases, and two "improved" cases, one relieved of symptoms for ten years before a final relapse, and another, well for three years before a terminal hemorrhage, showed evidence at operation of an established collateral circulation. (5) The operative mortality was 27 per cent. (6) It would seem as if omentopexy was of some value in the treatment of portal cirrhosis with ascites.

—*Extract from article by* Robert S. Grinnell, M.D., *New York City, Annals of Surgery, March, 1935, p. 890.*

THE RAPID DIAGNOSIS AND SERUM TREATMENT OF LOBAR PNEUMONIA*†

Harry F. Dowling, M.D.

Clinical Instructor in Medicine, George Washington University School of Medicine

Physicians are, before all else, practical men. Although they are interested in medicine as a science and in the art of medicine, nevertheless their primary purpose is the healing of sick people. Such a purpose demands of any method of treatment that it be (1) feasible, (2) efficient, and (3) as simple as possible. It is because of their feasibility, efficiency and simplicity that I would like to talk about the rapid diagnosis and serum treatment of lobar pneumonia.

The importance of lobar pneumonia is shown by the fact that it stands in seventh or eighth place among the principal causes of death, and ranks second only to tuberculosis among the infections that cause death (Heffron and Anderson). The gravity of the disease is enhanced by the fact that it so often affects men and women in the prime of their lives.

Lobar pneumonia is almost always caused by a pneumococcus, and is really not a single disease, but a group of diseases caused by the different types of the pneumococcus. These types are designated as Types I through XXXII. Types I, II and III are the most frequent excitants of pneumonia, causing about 70 per cent of the cases in adults. All of the other types, from IV through XXXII, were formerly classified together as Group IV.

It is important for the physician to distinguish between these types in every case of lobar pneumonia, because each type causes a specific disease which may differ with regard to prognosis, complications and especially with regard to treatment.

Until recently the type diagnosis of pneumonias was difficult and time-consuming, requiring passage of the organisms through a white mouse. With the newest method of immediate typing, the method of Neufeld, which was introduced into this country by Sabin, an effective technic is available which makes the typing of pneumococci from sputum so rapid that the entire procedure can be finished in 30 minutes, and so simple that it can be done by any physician in his office (or at the bedside, if really necessary).

---

* From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School, Boston, Mass.

† Read before the Society, January 16, 1935.

TECHNIC

The sputum should be fresh, if possible. For this purpose it is best if the person performing the test obtain the material himself, by having the patient first rinse his mouth and then cough into a clean sputum-cup. If the test cannot be done immediately, it will work equally well if the sputum has been kept in the refrigerator for several hours, but it is best not to leave it at room temperature.

The materials needed for the procedure are: clean glass slides and coverslips; a platinum loop; a flame; Loffler's alkaline methylene blue stain; and antipneumococcus serum (obtained from the rabbit) for the types of pneumococci for which it is desired to test. If one is testing for types I and II, the slide is marked into halves and numbered "I" and "II" at each end. On each half is placed a small fleck of sputum. To the sputum on the side marked "I" is added a a drop of type I rabbit antiserum, and to the other bit of sputum a drop of type II serum. A loopful of methylene blue is added to each, and the three ingredients mixed thoroughly without spreading. A coverslip is dropped over each preparation, and they are examined while moist under oil-immersion lens.

In any preparation in which the antiserum is not of the same type as the pneumococcus, the pneumococci will be stained a deep blue, but will show no capsules—only a faint halo of light being seen around each organism. If one of the preparations contains antiserum specific for the type of pneumococcus present, the organisms in that preparation will be stained blue and will be surrounded by a peripheral capsular zone which does not take the stain, but has a "ground glass" appearance and looks definitely "ballooned-out." The presence of one diplococcus with a typically-swollen capsule is often sufficient to make the diagnosis, provided none are seen in the other preparation. The appearance of the swollen capsule after the specific serum has been added is unmistakable and definite (Beckler and MacLeod). In more than 100 typings done personally at the Boston City Hospital, according to the Neufeld method, and checked by the routine mouse methods, I have never seen a false positive test. False negative readings will occasionally occur if the observer has not searched the preparation long enough to find the proper organism. As careful a search should be made for these pneumococci as is made for tubercle bacilli in a suspected case of tuberculosis. Then, if they are not found, the disease may usually be classified as having been caused by some other organism, usually a pneumococcus of one of the types for which a test was not done.

If it is desired, the test may be carried out for additional types of pneumococci, by using the antisera of these respective types. I use, as a routine, antisera for types I, II, III and VII, the first 3 types being the most frequent incitants of lobar pneumonia, and type VII pneumonia being the only class, in addition to type I and type II pneumonia, in which serum treatment has been found to be of value.

TREATMENT

After the typing is completed, when and how may serum be used? The earlier treatment with whole, unconcentrated antipneumococcus serum was encouraging, but such serum had to be given in large quantities, doses had to be repeated at frequent intervals, and severe serum sickness often resulted. Since certain workers, notably Felton at the Harvard Medical School, found that the pneumococcus antibodies were closely associated with one of the globulin fractions and devised methods of concentrating these antibodies, excellent results have been obtained with concentrated sera, which are becoming more and more widely used.

Large series of cases of type I and type II pneumonias have been treated with concentrated antipneumococcus sera. At the Boston City Hospital a study of 240 cases of type I pneumonia (Sutliff and Finland) showed that among the patients not specifically treated with serum, 41.3 per cent died, while among those specifically treated, 18.6 per cent died (Table 1). If one considers only the patients admitted to the hospital within the first 4 days of their disease, the mortality rate was 36.8 per cent for those not treated with specific serum, as compared with 16.1 per cent for those treated with serum, regardless of the time when serum administration was begun. For type II cases (Finland and Sutliff) the decrease in mortality among serum-treated cases was also quite striking. Of all the patients with type II pneumonia not treated with serum, 40 per cent died, as opposed to 20 per cent mortality among serum-treated cases. When cases admitted within 96 hours of the onset of the disease are considered, the corresponding figures were 39 and 17 per cent, respectively.

TABLE 1

MORTALITY OF TYPE I AND TYPE II LOBAR PNEUMONIA TREATED WITH CONCENTRATED ANTIBODY (FELTON) COMPARED WITH THE MORTALITY OF SIMULTANEOUS CONTROL SERIES WITHOUT SPECIFIC THERAPY

(Boston City Hospital, 1929–1932)

	TYPE I PNEUMONIA				TYPE II PNEUMONIA			
	Specifically treated		Not specifically treated		Specifically treated		Not specifically treated	
	Number of patients	Died per cent	Number of patients	Died per cent	Number of patients	Died per cent	Number of patients	Died per cent
All patients	97	18.6	143	41.3	46	20	81	40
Patients admitted to the hospital less than 96 hours after onset of the disease	75	16.1	76	36.8	41	17	41	39

These statistics are much more convincing when taken in conjunction with those from other large clinics. Wherever large groups of cases are treated early with adequate amounts of potent specific serum, and compared with cases of pneumonia similar in all other respects but not treated with specific serum, the mortality in the serum-treated cases is approximately one-half of that for non-serum-treated cases. Results reported from widely-separated sources are in close agreement.

In addition to this substantial reduction in mortality for large groups of cases following the administration of specific serum, there is also a marked change in the clinical picture of the individual patient. Within 8 to 12 hours, signs of toxemia have decreased or disappeared. It is not unusual to find that a patient who, the night before, was restless, delirious, dyspneic, cyanotic, and suffering intensely, appears on the morning following serum therapy, quiet, composed, rational, interested again in the world about him—in fact, very often, immersed in the pages of the morning newspaper. Within 24 to 36 hours after treatment is begun, approximately 80 per cent of all type I and type II patients who receive serum and recover have a marked and permanent drop in temperature to or below 100°F. (Finland).

Granted that such results can be obtained, one must next decide to whom serum should be given. There are certain definite prerequisites:

1. The patient must have pneumonia caused by one of the types of pneumococci against which specific serum has proved to be of value. Types I and II pneumonias fall into this category, and recently type VII antiserum has been shown to produce equally good results (Bullowa).

2. The disease should not be more than 4 days old, dating from the onset of a chill, chest pain and bloody sputum, or the first of these that appeared.

3. The patient must not be sensitive to horse serum (especially if there is an allergic history).

4. Serum should not be given to patients with pulmonary edema or to patients who are "in extremis."

Serum sensitiveness should be sought for by taking a careful history of the presence of allergic diseases in the individual or his family, or of the previous administration of serum. Secondly, one drop of a 1:10 dilution of horse serum, or of the therapeutic serum, should be instilled into the conjunctival sac of one eye. Thirdly, 0.1 cc. of this same dilution of serum should be injected intradermally. The intradermal and ocular tests are observed in 15 to 30 minutes. The intradermal test is considered positive when the original wheal enlarges and is surrounded by an area of erythema. A positive ocular test is manifested by hyperemia of the conjunctiva.

A positive skin test, particularly if the reaction is not marked, does not necessarily mean a severe grade of sensitivity. It is a yellow light, saying, "Proceed with caution!" In the face of it, one should give serum in small doses, preferably subcutaneously, at first, and always have at hand epinephrine, in a syringe, ready for use. A positive conjunctival test, on the other hand, is a red light, meaning, "Danger—stop!" One should never give serum to a patient in whom this test is positive. Fortunately people who show positive ocular tests are extremely rare.

After it has been determined that the patient has the proper type of pneumonia and that he is a fit subject for treatment, specific serum therapy should be begun at the earliest possible moment. Type I, II or VII antipneumococcus serum may be obtained from any one of several commercial houses, in vials of 10,000 and 20,000 units. (A unit is the smallest amount of serum that will protect a white mouse against one million lethal doses of a highly virulent pneumococcus culture.) Before administration, the ampule of serum should be placed in a vessel of warm water, so as to bring the serum to body temperature. The proper amount of serum is then administered intravenously.

No more than 5 cubic centimeters (about 5,000 units) should be given for the first dose. The physician should inject the smallest amount possible and then, with the needle still in the vein, pause a few moments while the patient is watched for a reaction. Serious immediate reactions are manifested by cyanosis, dyspnea and an asthmatic type of breathing, or "collapse." If such a reaction occurs, 5 to 10 minims of epinephrine can be administered immedately into the vein. If no reaction occurs, the remainder of the first dose is given at the rate of 0.5 cc. per minute.

After an interval of 2 hours, a second dose of as much as 25 cc. (about 25,000 units) may be given. Since the possibility of a serious serum reaction is less after the first dose, succeeding doses may be given at a speed which consumes about 10 to 15 minutes for the entire injection. Epinephrine should always be at hand. Two hours later another dose of about 45 cc. (about 45,000 units) may be given. After this dose, it is customary to wait from 8 to 12 hours to determine the effect of the serum before any further injections are undertaken, except that, in type II cases, at least 1 more dose of 45 cc. should be given before the longer interval is allowed to elapse.

The total amount of serum necessary in a given case depends upon three factors:

1. The type of pneumonia. Type II pneumonias, on the whole, require about 1½ times as much serum as type I pneumonias.

2. The duration of the illness. The earlier the serum treatment is begun, the smaller the amount of serum needed.

3. The severity of the disease. Judgment as to this factor rests upon the opinion of an experienced clinician, who bases his evaluation upon the clinical picture—the degree of prostration, dyspnea, cyanosis, circulatory failure, etc., —and upon the laboratory tests, particularly the blood culture. No single laboratory test has been devised which will supplant this judgment, and upon it rests the ultimate responsibility for the amounts and intervals of serum treatment.

The total amount of serum necessary for a case of pneumonia usually varies between 100-000 and 200,000 units. A mild type I case, treated early, might get along with less; a severe type II case, treated as late as the fourth day, would require much more. Cases with positive blood cultures require more serum and more persistent treatment than cases with negative blood cultures. Serum should be given in 20,000 to 40,000 unit doses at 6- to 12-hour intervals until the temperature, pulse and respiration have dropped permanently, or until it is evident that the serum is having no effect.

In conclusion, one word of caution is important: specific serum is by no means a panacea in pneumonia. It is useful only in a limited, but important, and well-defined, group of cases. The patient needs, in addition, the general supportive measures which are usually used in the treatment of this disease, and also the generally accepted specific measures, when indicated: digitalis for cardiac failure, oxygen for marked cyanosis, rigid treatment for abdominal tympanites, etc.

SUMMARY

A practical, efficient and simple method of handling cases of pneumonia is: (1) To obtain material as early as possible and type it by the immediate method, and (2) in suitable cases, to administer specific concentrated antipneumococcus serum. The effects of this serum are: reduction of the mortality in large series of cases, and rapid improvement of the clinical picture of the disease in the individual patient. These effects are especially marked if the serum is given early in the course of the disease.

The technic of the immediate method of typing pneumococci has been given, together with the method of administering serum, and suggestions as to dosage.

BIBLIOGRAPHY

Beckler, E., and MacLeod, P.: Neufeld Method of Pneumococcus Type Determination as Carried Out in Public Health Laboratory: Study of 760 Typings. J. Clin. Invest., 1934, **13**, 901.

Bullowa, J. G. M.: The Therapeutic Value of Specific Type VII (Cooper) Antipneumococcic Serum. Libman Anniv. Vols., 1932, **1**, 283.

Finland, M.: The Rationale and Practical Aspects of Serum Treatment in Pneumonia. Internat. Clin., 1933, **4**, 45.

Finland, M., and Sutliff, W. D.: The Specific Serum Treatment of Pneumococcus Type II Pneumonia. J. A. M. A., 1933, **100**, 560.

Heffron, R., and Anderson, G. W.: Two Years' Study of Lobar Pneumonia in Massachusetts. J. A. M. A., 1933, **101**, 1,286.

Sabin, A. B.: Immediate Pneumococcus Typing Directly from Sputum by the Neufeld Reaction. J. A. M. A., 1933, **100**, 1,584.

Sutliff, W. D., and Finland, M.: Type I Pneumococcic Infections with Especial Reference to Specific Serum Treatment. New England J. Med., 1934, **210**, 237.

PROBLEMS IN THE MANAGEMENT OF DEAFNESS*

Victor R. Alfaro, M.D.

Instructor in Otolaryngology, Georgetown University School of Medicine

To present in the short time at my disposal a comprehensive survey of a subject of such magnitude is utterly impossible. It is not my intention to bring out new ideas on the treatment of deafness; I merely wish to review some of the more important problems which confront the otologist, who is trying to practice ethically and endeavoring to achieve good results by virtue of honest effort and not as the product of charlatanism.

Many supposedly incurable cases of deafness are amenable to treatment purely on the basis of suggestion, hope and sympathetic understanding; this should be given by a trained otologist and not by miracle men who promise preposterous and impossible cures.

In order to give our patients a sound prognosis, it is essential to have a full history and make a correct diagnosis. Without going into the details of the differential diagnosis of deafness with which you are all familiar, let us consider the various types. Let us take up first the cases of pure nerve deafness. Among the most important causes of nerve deafness is toxic neuritis, secondary to measles, scarlet fever, mumps, diphtheria, meningitis, influenza and pneumonia. Syphilitic eighth-nerve neuritis is less common than formerly but must be considered. Syphilitic vascular changes within the labyrinth often simulate by the acute onset the well known syndrome of Méninère's disease. The exanthemata also account for cases of catarrhal deafness, when by virtue of infection of the middle ear the conductivity of sound is impaired. Mechanical and chemical factors are found in some cases of occupational and drug deafness.

---

*Read before the Section on Ophthalmology and Otolaryngology, December 14, 1934.

Labyrinthitis, whether infectious or toxic, may produce a total or subtotal nerve deafness. Since intracranial lesions in the neighborhood of the labyrinth or along the course of the eighth nerve may also produce a perception deafness, one must keep in mind the possibility of intracranial lesions, which are so easily overlooked. The Barany tests are of unquestionable value in arriving at a clear understanding of the cause and the location of lesions producing nerve deafness. One must mention also the nerve deafness so common in old age, a physiological senile degeneration of function noticeable to a greater or lesser degree in the aged. The treatment of nerve deafness is usually hopeless. However, with a history of acute onset and the suspicion of toxic neuritis, one can hope for partial restoration of hearing, and the prognosis in general is fair. Rest in bed with catharsis and the use of a simple sedative are helpful; however, the important thing in the treatment is to remove if possible the focus of infection.

The syphilitic neuritis when promptly diagnosed offers the only opportunity for quick and often dramatic results if specific treatment is administered to the limit of tolerance. Unfortunately, in some of these cases a distressing increase in the deafness is produced after injection of Salvarsan, either by direct action of the arsenic or by the sudden liberation of spirochetal toxins of decomposition. Because so little can be done to increase nerve acuity after its destruction by lesions, the management of nerve deafness is difficult and requires more than knowledge and technical ability. Intelligent guidance of the patients is essential. Enough hope must be imparted at all times to boost their morale. They must be told enough about the nature of their deafness so that they will not expect too much improvement, with subsequent disappointment. While some hearing remains they should be urged to learn lip reading. In certain cases in which there is residual hearing, the use of air conduction hearing aids will be of distinctive value.

As mentioned before, the exanthemata and upper respiratory infections are often complicated by otitis media, during the course of which we naturally have some deafness of the catarrhal type. Some of the patients with otitis media recover without perceptible loss of hearing. There are others, however, in whom enough scar formation exists to produce a moderate catarrhal deafness. As a matter of fact, a stenosis of the eustachian tube is not an uncommon sequel of chronic otitis media. The tubo-tympanic catarrh, secondary to sinusitis or naso-pharyngitis will lead to the same type of deafness. The diagnosis of catarrhal deafness is so simple that no time need be wasted in its discussion; however, one should be alert when he finds a normal Schwabach test and a negative Rinne test that we are not dealing with an otosclerosis. This mistake is commonly made with detriment to the patient, for no amount of inflation, bouginage or massage of the ear drum will help the latter condition. In the majority of otosclerotics the Gellé test is negative and there is little excuse for an incorrect diagnosis. I am well aware of the fact that there are other types of otosclerosis which are more difficult to diagnose, and in these only time and careful re-testing of hearing will solve the diagnosis. I have often asked myself in all fairness to my efforts in the treatment of catarrhal deafness, "Are you satisfied?" and my answer, unfortunately, is "No."

In young children in whom catarrhal deafness is due to the encroachment of hypertrophied adenoids on the eustachian tube, their removal leads to satisfactory recovery of at least 90 per cent of the loss. In acute catarrhal deafness sudden in onset with tinnitus and vertigo, inflation of the eustachian tube produces satisfactory results. Care must be taken in these acute tubo-tympanic processes not to inflate the ears in the presence of pus in the nasopharynx. This area should be carefully sprayed and the nasal cavity cleansed before attempting the treatment.

It is in the treatment of chronic tubo-tympanic catarrh that I have been sadly disappointed. Good results can be obtained by the usual procedures only in a very small percentage of cases, and even in these they are apt to be but of temporary duration.

I believe that I have seen a large number of these cases in which a deflected septum and hypertrophied turbinates have been removed or the mouth of the tube cauterized with no beneficial results. It is easily understandable that the mechanics of obstruction in hypertrophic tubo-tympanic catarrh should lead to deafness by virtue of rarefaction of intratympanic air and subsequent retraction of the drum with decrease of the conductivity of sound waves, particularly in the lower frequencies. It is more difficult to understand, however, why in the atrophic cases of tubo-tympanic disease, there should be such impediment to the reception of sound waves when there is no rarefaction of air or retraction of the drum. Could it be that the amount of diffusion of the sound waves through the eustachian tubes is greater than nature intended it to be, causing muffling of the sound? This latter group of cases probably offers the most hopeless prognosis, and nothing can be achieved with treatment unless one is able by the introduction of irritants into the eustachian tube to produce some decrease in its size. There is another group of cases which combines the essential characteristics of perception and conduction deafness, which we call mixed deafness. Patients with this type are only able to hear tones in the middle frequencies but cannot perceive the higher and lower pitched sounds. These are cases in which besides an impaired eighth nerve there is superimposed a conduction deafness, or vice versa. This type of deafness is more commonly seen in people beyond middle age, when normally degeneration of the eighth nerve begins. The prognosis in this particular group of cases should be guarded. The patient must be advised that treatments instituted can redeem only part of the hearing lost, that is, the catarrhal loss, but that normal hearing cannot be achieved because of nerve inactivity.

Much has been written about otosclerosis, but as yet we have no complete understanding as to the nature of the disease; therefore, we have been unable to devise any medical or surgical treatment for its relief. Attempts have been made by many to dissolve the otosclerotic foci by the administration of bizarre preparations. Efforts to surgically remedy the ankylosis of the stapes have been made with only poor results. It has been my good fortune to see a fairly large number of otosclerotics in our Tuesday clinics at Episcopal Hospital. I have been impressed by the rather high percentage of cases in which the vague or even definite onset of deafness and its merciless progression are associated with the appearance and development of diseases of the endocrine glands. This is not a new observation, for it has long been known by workers in this field that otosclerosis is associated in a large percentage of cases with dysfunction of these glands. I hope to have the opportunity after more material is gathered to present to the Society a group study of otosclerotics.

In conclusion, I should like to stress the following points:

1. A clear conception of the type of deafness we are treating is absolutely necessary before a sound prognosis can be given.
2. In severe cases of nerve deafness, patients should be strongly urged to learn lip reading; in milder cases the use of aids to air-conduction hearing is helpful. The otologist should assist his patients in the choice of instruments.
3. Cases of acute catarrhal deafness offer a fair prognosis; of chronic catarrhal deafness, a poor prognosis. Cases of mixed deafness with moderate nerve acuity offer a fair prognosis.
4. The prognosis of otosclerosis is hopeless. The use of bone conduction hearing aids is valuable, and lip reading should also be strongly recommended.

I have purposely avoided a survey of the literature, which is voluminous. I realize that

I have left many phases of this subject undiscussed. It has been my effort merely to review the more common conditions met in practice, with the hope of stimulating some discussion of these problems.

PAGES OF SPANISH MEDICINE*

FIELDING H. GARRISON, M.D.
Librarian, The Welch Medical Library, Baltimore

Spanish medicine begins in the prehistoric caverns at Cogul, Alpera and Almería. These contain mural paintings of surpassing merit and outline drawings and images in stone and bone depicting animals which are recognizable as to genus and species. There are also women of the obese, steatopygus, palæolithic type, clad in mantillas and bell-shaped skirts. The art of these caves constitutes the rude beginnings of descriptive biology and plastic (physiological) anatomy. The country, a well-ridged, well-watered peninsula, isolated from the rest of Europe by the Pyrenees and the surrounding ocean, was fought over for centuries by a long succession of invading races. The primitive Iberians occupied the east and south; the Celts came in at the north and northwest; the vast table-land between the Ebro (*Iberus*) and Guadalquivir rivers was the locus of the Celt-Iberic mixture. In the eleventh century, B.C., came the Phœnicians, attracted by the rich mines of silver, copper and mercury. They called the country *Span* or *Spania* (the hidden land), the earliest account of which is due to the Greeks (sixth century, B.C.). A century later, the Carthaginians invaded the eastern coast (Catalonia) to become the ancestors of the Catalans, the business people of Spain, who have been in revolt against constituted authority from the earliest times. Hamilcar, of the Barcagens, gave his family name to Barcelona. Hasdrubal made Cartagena the Carthaginian capital. In 206 B.C., the Carthaginians were ousted by Scipio Africanus. The Roman occupation lasted for six centuries (206 B.C.–409 A.D.). The Romans brought in a territorial administration at once firm and mild (*parcere subjectis et debellare superbos*), with better laws and the Latin structure of the Spanish language. A long period of tranquillity (*pax Romana*) followed, with growth of commerce and prosperity; and such public works as the great walls, military roads, amphitheaters and the massive aqueducts at Segovia and Tarragona, the starting point of Spanish skill in engineering, were constructed. Some of the ablest Roman emperors (Trajan, Hadrian, Theodosius) were born near Seville, and Marcus Aurelius was of Spanish descent. To Roman literature, Spain contributed Martial, Lucan, Quintilian, Seneca, Columella and Pomponius Mela; to medicine, the anatomists Mustio and Vindician; while Cassius Felix, Caelius Aurelianus and Theodorus Priscianus came from Africa Minor (Numidia). In the Middle Ages, many worthies and martyrs of the Church, such as St. Damasus (the thirty-sixth pontiff), Prudentius, Priscillian and Theodolphus (author of the Palm Sunday *Gloria*) were Spanish born. The mediæval surgeon Theodoric was probably a Catalan (Sudhoff). In the fifth century, A.D., the Vandals swarmed over Andalusia, then called Vandalusia (Vandal Land). Then came the Visigoths (409–713), who made their capital at Toledo. They brought in the medical laws of the Visigothic Code (*leges barbarorum*) and were converted to Christianity in the sixth century, A.D. The outstanding figure of the period was Archbishop Isidore of Seville (570–636), whom Sudhoff defines as "the authentic stepping-stone to Spanish science and medicine." In the Spanish Magna Charta (*Fuero Juzgo*), Isadore fused the best features of the Visigothic Code with the main features of mediæval policy for insuring social stability, viz., the divine right and hereditary succession of kings and the union of Church and State. The fourth book of his *Etymologia*, one of the first dictionaries of medical terms, is the earliest document of consequence in Spanish medical literature.

---

* Read before the District of Columbia Chapter of the Pan American Medical Association at the Spanish Embassy, Washington, D. C., October 28, 1934.

The Moslems dominated Spain for over five centuries (711–1276). Their policy was a species of easy going, tolerant liberalism after conquest. Moslemized Christians (*Mozarabs*), converted Moslems (*Moriscos*) and converted Jews (*Maranos*) enjoyed the same political and social privileges. The converted Berbers (*Almoravides*) and Moors (*Almohades*) of North Africa became more fanatical in conquest than the original Moslem invaders. Science, literature, art and philosophy were encouraged; schools, hospitals, libraries and scientific societies flourished; and life was made more comfortable by the introduction of cultivated plants and medicinal herbs, spices and perfumes, mineral drugs, street lamps, windowpanes, undergarments, and seranades with stringed instruments. From the bizarre Moorish rhythms came the unique rhythmic quality of Spanish music. The handy Arabic numerals made arithmetic, algebra and trigonometry practicable; chemistry was forwarded as alchemy; and geology was founded by the physician Avicenna. The Arabs were the transmitters and travelling agents of Greek medical literature, which was later translated from these Arabized versions into Latin by the learned Jews and Mozarabs at Toledo. The leading medical authors of the Western Caliphate, Albucasis, Avenzoar, and Maimonides, were all of them born at or near the Moslem capital, Cordova. Their contribution belongs properly to the main body of Arabic or of Jewish medicine. The revolt against Moslem authority and the struggle for national unity (1276–1479) was started in the Visigothic kingdoms of the North. By 1276, the only stronghold of the Moslems was the tiny kingdom of Granada, facing Africa. Unification was accomplished by strengthening the power of the monarch at the expense of the nobles; by the development of the popular assembly (*Cortes*), and by the rise of the forward-moving, up-and-coming class of public officials (*adelantados*). In 1479, Castile and Aragon were united by the marriage of Ferdinand and Isabella. In 1492, the Moslems were driven out of Granada and Columbus discovered the New World. In mediæval Spain, as elsewhere, universities were founded, insane asylums and leper houses were developed, medicine was largely an avocation of monks and surgery was in the hands of barbers. It is of trustworthy record that Queen Isabella introduced hospital tents and ambulances on the field of battle (1477–1489). Printing was begun in 1474. The most important of the Spanish medical incunabula are the tracts on plague and syphilis.

In 1519, Charles I of Spain became Holy Roman Emperor (Charles V). The period of the Hapsburg monarchs (1516–1565) was called the Age of Gold (*Siglo de oro*). Following the conquest of Mexico by Cortes (1519–1521) and of Peru by Pizarro (1531–1532), the revenues from the vast colonial empire were gigantic, amounting eventually to 360 billion dollars per annum. About half of this huge sum reached Spain. The rest was squandered in continual warfare, official graft and the wastage of a luxurious court, with an annual debt of 1½ billion. From the battle of Lepanto (1571) to the defeat of the Armada (1588), the Spanish navy ruled the seas; up to the battle of Rocroy (1671), Spanish infantry was regarded as invincible. The Age of Gold is marked by a great upthrust of Spanish culture. Geography and cartography were forwarded by exploration and colonization. In literature, Cervantes, Calderon and Lope de Vega became outstanding figures; in painting, El Greco; in music, Vittoria and Morales, who influenced Palestrina. The great anatomist Vesalius became physician to Charles V and Philip II, after the publication of his *Fabrica* (1543), which was antedated by the 2 text-books of Laguna (1535) and Lobera de Avila (1542). A long line of able anatomists includes Laguna, who discovered the ileocecal valve (1535); Gimeno, who described the stapes as the delta (1549); Reina who had some notions of the circulation of the blood (1552); Servetus, who first described the pulmonary circulation (1553); Valverde de Hamusco, who visualized the existence of nerve-sheaths and gave a better description of the eye muscles than Vesalius (1556); and Arfe, author of the first book on artistic anatomy (1585). Francisco Diaz published the first book on genito-urinary surgery (1588) and is thus the founder of urology. The wound-surgery of Arceo (1576) was translated into English, Dutch and German. Lobera de Avila wrote the first Spanish tract on pediatrics (*circa* 1531) and a book on the diseases of courtiers, viz., catarrh, gout, stone and syphilis (1544). Mercado first handled diseases of the liver, spleen, kidneys and bladder in monographic form (1594). Bravo, in Mexico, first described typhus fever as *tabardillo* (1570) and José d'Acosta the mountain-sickness of the Andes (1590). The medicinal plants of the New World and the East Indies were described by Oviedo (1565), Garcia da Huerto (1563), Fragoso (1572) and Cristobal Acosta (1578). Ponce de Leon (1520–1584) devised the deaf and dumb alphabet (Bonetus, 1620). Luis Vives filed the first European brief on poverty and unemployment (*De subventione pauperum*, 1526) and Las Casas the initial protest against cruelty to natives (1552). Huarte de Navasco published the first book on pedagogics and vocational aptitude (1557). Thus, the Age of Gold was the most brilliant period of Spanish medicine, reflected in the many English (Tudor) and other translations of Spanish medical books. By 1700, there were 34 universities in Spain, of which Alcalá de Henares (one of the oldest) became the University of Madrid.

The seventeenth century marks the rise of Spanish literature (Cervantes, Lope de Vega) and art (Velasquez, Ribera, Murillo) and the beginning of national decadence. Without didatic intention the painters of the period excelled in the depiction of such phases of pathological abnormity as idiocy, infantile paralysis, pituitary dwarfism and pituitary obesity. In Peru, the efficacy of cinchona in fever was demonstrated in the case of the *vicereine*, Countess Chinchon (1638), and so transmitted to Europe. Diptheria (*garotille*) was first described by Casales, Fontecha and Villa Real (1611). Daça de Valdes published the first book on spectacles (1623).

In the period of the Bourbon monarchs (1700–1800), decadence was in full swing. These monarchs had able ministers, who tried to avoid war and save public money. From the loss of Gibraltar to that of the American Colonies, the vast empire was dismembered; while four centuries of warfare and intrigue for Italian territory proved futile and expensive. The uprising of the people against the Napoleonic invasion on May 2, 1808, is celebrated annually as the Spanish Fourth of July and marks the dawn of a new day.

The eighteenth century period was one of reforms in medical education and public-health administration. The prime-mover of these advances was Pedro Virgili (1699–1776), chief surgeon of the Royal Navy, who founded Colleges of Surgery at Cadiz (1748) and Barcelona (1768) and was a maker of Spanish medicine in the truest sense. The Royal Academy of Medicine was founded in 1733–1734. Its literary organ (*Efêmérides*) was the first Spanish medical periodical. Outstanding were Gaspar Casal, who first described pellagra (1762); Gimbernat, discoverer of Gimbernat's ligament (1768), who taught John Hunter how to operate for femoral hernia; Orfila, Dean of the Paris Medical Faculty, who became an European authority on toxicology; Pigillem, who introduced vaccination (1800); and Balmis, who established it in the colonies (1803). Prominent among the later medical reformers were Castello, Mata, Seoane and Monlau y Roca, author of a famous farce on quackery (*Lo que es un curandero*, 1830). Among the anatomists, Fourquet discovered the stylo-auricular muscle and Viñals demonstrated the origin and course of the Chorda tympani (1841). The standard textbook was that of Bonells and Lacaba (1790), which held the field for half a century. Of the surgeons, Argumosa was a pioneer in blepharoplasty (1832) and parotidectomy (1832); Ribera resected the ribs for empyema in 1878; Rubio y Gali was the first to perform ovariotomy (1860), hysterectomy (1861), nephrectomy (1874) and laryngectomy (1878) in Spain. Corral is said to have done the vaginal Cæsarean section (Dührssen, 1908) in 1845 and

Margarit the interilio-abdominal amputation in 1888. Salvador Cardenal introduced antiseptic surgery (1880), and San Martin was a pioneer in experimental vascular anastomosis (1902). The leading clinician of the period was Asuero, author of a book on substitutive therapeutics (1850). Outstanding names are those of Olavide in dermatology; Sota and Botey in otorhinolaryngology; Toro, Cervera and Castillo in ophthalmology; Benevente and Tolosa Latour in pediatrics; Esquerdo and Simarra in neuropsychiatry; Pi y Suñer and Turro in physiology. Oloriz, Letamendi, Lecha Marzo, de Quiros and Ingegnieros have done remarkable work in criminology and legal medicine; and Morejon, Chinchilla, Villalba, Olmedilla, Comenge and García del Real in the history of Spanish medicine. A great tradition in bibliography was established by Nicolas Antonio (1672–1696), with brilliant continuations by Menéndez y Pelayo for Spanish science (1889–1902), Icazbalceta, Andrade and Nicolas Leoń for Mexico, Toribio Medina for Latin America and Retana for the Philippines. The extension of Spanish medicine to Latin America is associated with the names of Liceága, Lavista, Peñafiel, Estrada and Leoń in Mexico; Finlay, Guiteras, Agramonte, and Santos Fernandez in Cuba; Vianna, Cruz, Chagas, Amaral and Vital Brazil in Brazil; Malbran and Penna in Argentina.

The twentieth century marks another significant upthrust of Spanish culture, associated with painters like Zuloaga and Sorolla, composers such as Albeniz, Granados and Falla; novelists like Valera, Alarcón, Palacio Valdez, Pardo Bazán and Zamacois; and such dramatists as the Nobel prizeman, Echegaray or Benavente. The outstanding medical figure is Santiago Ramón y Cajal (1852–1934), just deceased, through whose work Spain has exerted an influence upon European medicine as decisive as that of Metchnikoff and Pavloff in Russia. Not only did Cajal create a Spanish school of neurohistologists, exemplified in such brilliant pupils as Achucarro, Hortega and Tello; but he made the Golgi stain viable for the finer anatomy of the entire nervous system, from neuroglia to neuron. His masterpieces are his monograph on the retina (1892) his treatise on neurohistology (1897–1904) and his great work on the Degeneration and Regeneration of the Nervous System (1913–1914), in which his histologic findings are applied to function (neurodynamics). In Cajal's period come the original descriptions of medullary left-sided and partial right-sided hemiplegia by Tapía (1905), and of lipodystrophy by the ophthalmologist Barraquer (1906), who devised the well known operation for cataract (phakoeresis, 1917). Altogether the greatest of recent histologists, Cajal was, through his Memoirs and his Café Chats (*Charles de Café*), the keenest thinker and one of the most accomplished men of letters of modern Spain. As serious thinking, many of these aphorisms seem worthy of Vauvenargues or Joubert and elsewhere approach such masters of French cynicism as La Rochefoucauld, Chamfort and Stendhal. By and large, the medical periodicals of Spain have been inferior to those of South America in quality. But the *Anales de medicina interna* (1932), a product of the Revolution (1931), is a publication of the best scientific type and doubtless a harbinger of better things to come.

Hay Fever Among Japanese: II—In a previous communication it was stated that hay fever is unknown in Japan; that on American soil 3.5 per cent of the Japanese population contract this disorder; that scores of these patients, when they return to their native land, are free from symptoms during their stay in Japan, and that on their return to America the symptoms invariably reappear after a year or two. It was also noted that there was no marked change in the dietary habits of the patients in either country.

No country can boast of such a wealth and variety of trees and shrubs per square mile as can Japan. Because of her natural proximity to the continent of Asia, without doubt, great numbers of plants were carried over to join the endemic flora of Japan, and all found suitable homes amid varying conditions of climate and physiography. All vegetation, however, does not produce hay fever. According to Thommen, in the entire botanic kingdom there are 233,000 different kinds of plants, which can be divided into the following classes:

1. Flowerless plants		100,000
Algae and fungi	80,000	
Mosses	16,000	
Ferns	4,000	
2. Flowering plants		133,000

Theoretically, there are, then, 133,000 kinds of plants which when pollinating are a possible source of hay fever.

Conclusions

(1) The concentration of pollen in the air in Japan is much higher than that in Los Angeles. (2) Practically all Japanese pollens are large, heavy and nonspiculated. (3) The high humidity, abundant rain and other meteorologic conditions in Japan appear to prevent the dissemination of light, buoyant pollens, which are those usually considered as excitants of hay fever. (4) A low concentration of irritating pollens in the air is more productive of hay fever than is a higher concentration of nonirritating pollens

—*Extract from article by* H. J. Hara, M.D., *Los Angeles*, *Archives o*
Otolaryngology, January, 1935, p. 9.

INDUSTRIAL MEDICINE AND MEDICAL ETHICS*

The Work of the Medical Department of the Chesapeake and Potomac Telephone Company

William Cabell Moore, M.D.

Medical Director, Chesapeake & Potomac Telephone Company

A new situation has arisen in the practice of medicine since the enactment of the legislation known as the "Workmen's Compensation Act." This situation has made it necessary for some industries to employ physicians to assist in handling various medical problems that have come up as a result of this law and has directly affected physicians in their relations with one another and with their patients where industry is concerned.

There is nothing in the old system of what is termed "Medical Ethics" that refers specifically to industrial medicine, but the underlying principles of "Medical Ethics" are the same always and these underlying principles must be applied to new conditions when new conditions arise.

It is proposed, therefore, to describe briefly the work of the Medical Department of the Telephone Company, one of our large industries, and to consider the application of these underlying principles to conditions affecting physicians serving this industry and physicians attending employees of this industry in their relations with each other and with the industry and with the employees.

Definition of Medical Ethics

Ethics has been defined as the science of human duty. It relates to customs and manners, and to what is properly due from one person to another in their association with each other. And the Principles of Medical Ethics are a series of regulations adopted from time to time defining the duties of physicians to each other, to their patients and to the public, and the obligations of patients to their physicians. These principles are the basic principles of right action for physicians in all their professional activities, and their application, as I see it, implies that physicians should always do what is right and decent and honest in their relations with each other, with their patients and with the public.

The Workmen's Compensation Act

Prior to 1910 laws had only remotely and indirectly affected the relations between employers and employees so far as health was concerned, and with few exceptions employers had done little to improve the health and working conditions of their employees. But since 1910 the situation has changed materially, for just prior to 1910 was enacted in this country the first of the laws known as "The Workmen's Compensation Act," a law which with modifications has since been adopted in every state in the Union and which has exerted a profound influence upon the health and safety movement in industry, and directly affected the relations between employers and employees. This law compels the employer to bear all the expenses incidental to an employee's recovery from an accident arising out of and in the course of employment and from occupational disease and to pay compensation in case of death or loss of limb as a result of employment. The law also compels the employer to carry compensation insurance or to be self-insured for the better protection of his employees.

Effect on Employers

Naturally, this law stimulated employers to take an unusual interest in accident prevention, and the relationship between poor health and accidents and good health and safety was quickly recognized.

Effect on Physicians

The law also affects physicians indirectly, for some of the employees of industry soon began to take advantage of the opportunity afforded by this law to pretend disability when there was none and to prolong unduly time lost on account of disability and thus obtain money dishonestly from their employers or from insurance companies. This the employee could do only with the approval and assistance of the physician who was attending him. Sometimes the physician knew that he was assisting in a dishonest act, and did not care so long as he got paid; at other times the physician assisted unintentionally and unknowingly, not realizing what he was doing, or he knew what he was doing and did not know how to do otherwise.

---

* Read before the Society, January 16, 1935.

Need for Physicians in Industry

Naturally, employers recognized in time that they were being imposed upon and endeavored to prevent it, and some industries employed physicians to assist them in this as well as to assist them also in handling other medical problems that arose in connection with the operation of their business.

Safeguarding of Employees of the Telephone Company Against Loss Due to Both Sickness and Accident

The present Workmen's Compensation Act applies only to accidents arising out of and in the course of employment and to occupational disease. It does not apply to ordinary sickness. But the Telephone Company early recognized the relationship between poor health and accidents, and poor service, and that the best service was impossible unless the employees were healthy. So, with a view to reducing accidents and improving service, in 1912 this Company adopted a plan, called the "Benefit Plan," for paying benefits to its employees absent from work on account of sickness and accident, thus fulfilling the law's requirements regarding accident and taking care of the employees when sick. The Telephone Company is self-insured, and calls its insurance payments "benefits" or "employee benefits."

Payment of Disability Benefits Solely by the Company

Employees are not legally entitled under the Workmen's Compensation Act to benefits during sickness as they are in case of accident. These "sickness" benefits are paid voluntarily by the Company and are under the direction of a committee known as the "Benefit Committee." The amount and the length of time during which these sickness benefits are paid depend upon the employee's wages and length of service. Money for both sickness and accident benefits comes from the earnings of the Company and is charged to operating expenses, just as are other expenditures made in connection with the running of the business. The employees do not contribute directly or indirectly to these benefits, and in no way directly or indirectly do these expenditures influence the Company's wage schedule. This is purely a part of the Company's welfare or health work for the benefit of its employees and for improving service. It should have reduced accidents and time lost by employees on account of sickness and accident. It accomplished all of these things except to reduce the amount of time lost on account of sickness.

Increase in Time Lost on Account of Sickness After Adoption of the Benefit Plan

Time lost by employees on account of sickness increased steadily and amazingly after the Benefit Plan was adopted. A few years after the adoption of the Benefit Plan, considerably more than twice as much time was being lost on account of sickness as at the time when the Plan was adopted. Obviously, this was not due to the work or to bad health conditions in the community, for a majority of the employees never got sick; it was apparently due to the fact that some employees were taking advantage of the Company by pretending to be sick when they were not, and by prolonging illness unduly.

Establishment of the Medical Department of the Telephone Company in 1921

The Chesapeake and Potomac Telephone Company is a large concern. It operates in the District of Columbia, throughout Maryland, Virginia and West Virginia, and has more than 10,000 employees. The headquarters' offices of the Company are in Washington. The Medical Department looks after the Company's medical activities throughout the C. & P. territory. The headquarters and business office of the Medical Department are located in Washington, where is maintained also a medical office for the examination of applicants and employees and for first-aid treatment, and where in addition to the Medical Director, who is a physician employed on a part-time basis, and the lay force engaged in attending to the business of the office, there are employed regularly one part-time physician and two full-time nurses. The Company also maintains a similar medical office in Baltimore, where are employed regularly one part-time physician and one full-time nurse. And in numerous other centrally located cities and towns in the C. & P. territory physicians have been selected and appointed to make examinations and to attend to other local medical matters for the Company as the need therefor arises, all under the direction of the Medical Director.

Duties of the Medical Department

The principal duties of the Medical Department are: (1) To examine all applicants for employment so that the Company may get reasonably healthy employees, (2) to examine employees who have been sick to see if they are able to return to their regular work or should be given some other kind of work for a time, (3) to examine employees who show a tendency to lose too much time on account of sickness to see if something can be done to improve the health of these employees, (4) to coöperate in an advisory capacity with the Legal Department in handling damage suits and compensation cases and with the other departments in handling any medical matters that arise in connection with the business of the Company, and (5) to serve as the liaison office between the Company and physicians attending the Company's employees for the purpose of obtaining information concerning employees who are absent because of sickness or any reason connected with physical disability.

Absence of Dispensary or Clinic

The Company does not operate a dispensary or a clinic, or undertake to treat its employees who become sick or disabled, except to give first-aid treatment in Washington and in Baltimore when an employee is taken ill or is injured while at work, and occasionally to give simple treatments to an old employee with a chronic ailment who has no regular attending physician. The Company prefers that employees shall have private physicians to take care of them and their families when sick or disabled.

Right of Employees to Select Their Personal Physicians

In case of illness the Company never questions the right of an employee to have any physician or mode of treatment desired, chiropractic, osteopathic, regular or irregular, provided the employee and the physician are believed to be acting in good faith and the treatment is directed intelligently. But in case of accident on duty or of occupational disease, when the Company is under legal obligation to pay all the bills and to restore the individual to health when possible, the Company feels that it has the right to select the physician and the hospital, with due regard always for the feelings and wishes of the employee, and it would never interfere with a disabled employee having the advice and counsel of his regular physician. Usually the employees gladly avail themselves of the assistance offered by the Company.

Non-existence of Special Accident Hazards

There are no special accident hazards or occupational diseases in telephone work, and there are few on-duty accidents, and very few of these are serious. The number of accidents has been materially reduced in recent years by instruction in accident prevention and in first aid. In case of serious accident the injured person is taken to the nearest approved hospital and the Medical Department is notified, and, if there is no particular physician the employee wishes to have called, the Medical Department sends someone to take charge of the case. When the injured employee selects his own surgeon and for any reason the Company wishes to have a surgeon of its choice see the employee, the employee's surgeon is asked to call the Company's surgeon in consultation so that they may meet at an appointed time and examine the patient together. Subsequent events will be determined by the report made to the Company by the Company's surgeon. It is the Company's desire to coöperate with the employee's surgeon, not to interfere with him. When there is conflict of opinion, the Medical Director or the Company's medical representative will discuss the matter frankly and freely with the employee's surgeon.

SICKNESS

When sick and unable to be at work the employee is expected to notify his department, and to get competent medical attention, and as the Company has to fill an absent employee's place it would like to know when the employee may be expected to return to work; also as it pays benefits during disability due to sickness the employee is required to furnish the Company a certificate on a form filled in by the attending physician stating the reason for the absence and the time when the employee may be expected to return to work. It is the employee's obligation to get this report from his physician and see that it is sent to the Company. When the employee continues ill, a similar certificate is required every two weeks, so that the Company may be informed of the course of the illness and of complications or changes that affect the prognosis, and may be assured that the employee continues under the care of a physician. These certificates are sent to the Medical Department for review by the Medical Director or someone trained to handle them. The Medical Department then advises the employee's department regarding the outlook and probable date of return to work. The Benefit Department is also kept informed.

COÖPERATION OF ATTENDING PHYSICIANS

Medical ethics and the law in some respects seem to presume that all doctors, whatever the school of medicine in which they were trained, are equally competent and reliable, but undoubtedly some physicians are better informed than others and some are more careful and conscientious than others. Most physicians attending employees now do their best to coöperate with the Company, and give the information asked for in the certificates, but some physicians give so little information that their certificates are practically worthless. The nature of the illness which is the reason for the absence may not be stated clearly, or the absence stated as being necessary for recovery is all out of proportion to the diagnosis, or the time when the employee may be expected to return to work is said to be unknown or undetermined or indefinite.

The Medical Department does not wish to interfere with a physician attending an employee, but when the certificates do not explain clearly the reason for the absence or do not contain the information asked for, the Company feels that it is necessary to investigate and it proceeds to do so.

METHOD OF INVESTIGATING ABSENCE DUE TO SICKNESS

First, as a rule, the Medical Director or one of the physicians in the employ of the Company attempts to obtain additional information from the attending physician by telephone, by letter or in person. Only Company physicians are permitted to confer with the attending physician concerning the illness of an employee, and information obtained in this way is considered confidential, the attending physician never being quoted. When it is not possible to obtain the needed information from the attending physician, as is sometimes the case, or when for any good reason it is deemed necessary to investigate the health of an employee, the employee is asked to come to one of the Company's medical offices or to go to some physician selected by the Company, who takes a history and makes a careful examination. Company physicians are instructed to make every effort to be considerate of employees and to say and do nothing to cause displeasure or that might be regarded as a criticism of the employee's private physician. Then, after investigation, if the Company is satisfied that an employee who is absent from work and supposed to be sick, is not sick and might be at work, benefits are stopped and the employee is given leave without pay. The Company never insists that an employee who has been reported sick shall return to work until the attending physician reports that it is safe for the employee to do so, but sickness benefits may be witheld by the Benefit Committee when there is a valid reason for it, and stopping the benefits under these circumstances and giving leave without pay usually has a salutary effect. The employee soon comes back to work, and never in many hundreds of cases have I seen any harm done. Should the employee not return to work and should it appear later that the employee really is sick, benefits will be restored and all unpaid benefits paid in full. The Company wants its employees on the job but does not want them to come to work when they are sick or disabled.

The Company has found that it cannot always rely upon the attending physician to see that an employee who has been sick returns to work as soon as he has recovered and is able to do so, but it may not be the attending physician's fault when a patient who has recovered from an illness or an injury does not return to work promptly. A physician may think that his patient has recovered, but he cannot well insist upon his patient returning to work when the patient says he is sick and unable to work. Under existing circumstances when the employer is paying disability benefits, it seems to me that physicians attending those who work for others have a duty and a responsibility to the employer as well as to the employee who is the patient.

ETHICAL ASSISTANCE ONLY ON PART OF ATTENDING PHYSICIANS

The Company does not expect or desire a physician attending an employee to aid the Company unduly, or to do anything for the Company he should not do. The Company also does not like to believe that physicians intentionally mean to be parties to prolonging an illness unduly or that they keep their patients under treatment longer than is really necessary, but sometimes this would appear to be the case, for it is certain that much more time is lost by employees on account of sickness than should be lost on this account, and it is also certain that employees can stay away on account of sickness only with the approval and assistance of the physicians who are attending them and who certify that they are sick, or disabled and that absence is necessary.

STATISTICS FOLLOWING ADOPTION OF THE BENEFIT PLAN

Benefits during sickness are paid as a rule only to those employees who have had two or more years' service, so that it is possible to compare groups not receiving benefits during sickness with groups receiving benefits, and it is found that a great deal more time is being lost by employees receiving sickness benefits than by employees not receiving these benefits. It is found also that much more time is lost on account of sickness by women than by men, for which there is no adequate explanation, and about two-thirds of the employees are women.

Taking statistics for the 3 years, 1926, 1927 and 1928, selecting these years at random as a fair example of conditions in recent years, it is found that men of less than 2 years' service and, therefore, not eligible to benefits, lost during these 3 years an average of 126.4 days per month per 1,000 employees, while men of 2 to 5 years' service, eligible to benefits and comparable in age and experience, lost during this period 249.3 days per month per 1,000 employees, almost exactly double what male employees not eligible to benefits lost. Women of less than 2 years' service and not eligible to benefits, lost during this period an average of 353.5 days per month per 1,000 employees, while women of 2 to 5 years' service, eligible to benefits, at the same time lost an average of 824.1 days per month per 1,000 employees, more than double what female employees not eligible to benefits lost.

There are no statistics available showing what was the situation prior to adoption of the Benefit Plan, but in 1913, the first year after the adoption of the Plan, 400 days per month per 1,000 employees were lost on account of sickness. Eight years later, when the Plan was still going full swing without special supervision, 1,020 days per month per 1,000 employees were lost on account of sickness, more than 2½ times as many as when the Plan was first adopted. Since 1921, absence due to sickness has been more carefully supervised and unusual absences due to sickness have been reviewed by Company physicians, and, in 1933, 12 years later, only 313 days were lost per month on account of sickness for every 1,000 employees eligible to benefits, a saving since 1921 of a little over 700 days per month per 1,000 employees eligible to benefits.*

This saving was made partly in a reduction in the number of days lost per illness, and partly in a reduction in the percentage of men and women eligible to benefits who were absent on account of sickness, for in 1921, 17 per cent of the men and 30 per cent of the women eligible to benefits were absent on account of sickness, while in 1933, only 10 per cent of the men and 19 per cent of the women eligible were absent on this account. And in 1921 the average time lost per case among employees eligible to benefits was 43 days, while in 1933 the average time lost per case was 28 days.

NECESSITY OF KNOWING HEALTH OUTLOOK AND ACCIDENT HAZARD IN EMPLOYEES

It is evident, therefore, that the Company has been justified in supervising absences due to sickness, and in investigating the physical condition of its employees in order to determine the health outlook. It is necessary for the Company to know also what is the accident hazard in its employees, for in case of accident the law makes no distinction between healthy and unhealthy employees, nor does it consider whether disability or death is due to the employee's own carelessness or to disease that existed prior to employment, or is the Company's fault. The Company is held entirely responsible regardless of contributing circumstances, just as it is held responsible when service is poor. Poor health predisposes to accidents and good service is impossible when the employees are not healthy. The Company is compelled to see to it, therefore, that its employees measure up to certain standards of physical fitness, and it is the Company's job to see to this. The Company cannot and should not expect private physicians to do this.

THE RIGHT TO HAVE A WASSERMANN TEST MADE

It has been suggested that the Company has no right to have a Wassermann test made on an employee who has a private physician without that physician's consent, or, if the employee has no private physician, without explaining the full meaning of the test to the employee. Obviously, various complications would arise if the meaning of the Wassermann test was explained to the exployee beforehand, and much time would be lost in trying to obtain the private physician's consent. The Medical Director has also encountered more than one physician attending an employee who, when the matter was being discussed, stated that he did not believe in the Wassermann test, or that the test was not necessary. Most physicians would coöperate, but the Company itself has to make the test as a rule, if it is to know the result and to get it promptly. If the Company's physician finds that the test is positive, it is checked at once by a second test, and if again found to be positive, the employee's doctor is then told the result and asked to check the test himself. The Company physician does not tell the employee the result of the test; he tells the employee's physician and leaves it to him to tell the employee. When the employee has no physician and the test is positive, the employee is advised to get a physician, and he is helped to get one if necessary, and the physician is then told.

---

* The depression probably helped materially—the reason is self-evident.

When the Company makes a Wassermann test or examines one of its employees there is no desire to take advantage of the employee or anyone, and there is no dishonest purpose in making the test, but merely a desire to learn the truth. No harm is done the individual or the doctor, and the doctor is not being treated discourteously. On the contrary both the doctor and his patient will be benefited. If it is wrong for the Company to make a Wassermann test on an employee, then the Company has no right to make any sort of examination of its employees, and yet in every State in the Union, except one, if an employee dies as a result of syphilis or heart disease or any other disease contracted prior to employment, and it can be shown that the disease has been aggravated in the least by his work, the Company is held wholly responsible for the employee's death.

A judicial opinion, reported in the "Federal Supplement," (West Publishing Co., St. Paul, Minn., February 12, 1934, p. 324), has a definite bearing upon this question. It reads:

"The fact that employee was predisposed to injury by the long existing arterial aneurysm (due to syphilis) does not preclude a compensation award if his work had some definite, discernible, and proximate relation to the rupture (of the aneurysm) which caused his death."

There are other similar cases on record, some due to syphilis, some to circulatory or cardiac or other disease, and this sort of thing obliges the employer to determine the physical condition of his employees, including syphilis, or bear the consequence. Neglect to do so has proved extremely expensive to industry in many instances.

Unethical Reports

Returning to the question of ethics and the responsibility of the attending physician to his patient's employer, is it right for an attending physician to give "anemia and run-down condition" as the reason for advising 6 weeks' absence from work during which the patient's wages will be paid as sickness benefits, when as the Company learns later the physician has not made a blood count, and examination by a Company physician shows that the employee is not anemic but just tired, possibly from home work or social activities combined with business duties? Or should a physician give "low blood pressure," as the reason for advising indefinite absence during which the patient will be paid benefits, when the blood pressure is normal? Or give "acidosis" or "some obscure infectious condition" as the reason for indefinite absence during which the patient will be paid benefits, when the condition is pregnancy for which the patient is not entitled to benefits? Or give "inguinal adenitis and abscess due to injury while at work" as the reason for prolonged absence and a demand that the Company pay for the treatment, when the trouble is due to syphilis and the man has a 4 plus Wassermann? Or to diagnose "hernia due to strain while at work" when there is no hernia? Is it right that a person receiving sickness benefit should be allowed to take 6 to 8 weeks to recover from an uncomplicated appendectomy, and 3 or 4 weeks to recover from common colds or simple indigestion? Shall the Company allow an employee to be treated for neurasthenia when he has tuberculosis? Or be made to pay a large sum to a malingerer because some misguided doctor says the individual has traumatic neurosis? All these things have actually happened and similar cases are coming up constantly. This list could be drawn out interminably. There is hardly a day that passes when some such question does not come up in the Medical Department. And if these things are not right, then a considerable number of the physicians attending the Company's employees are allowing their patients to do what is not right and assisting them in doing it. Most physicians wish to do what is right and it may not always be the physician's fault, but it seems at times that the physician is either very careless or very indiffer-

(*Continued on page 92*)

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA
Editorial Office, 1718 M Street

EDITORIAL STAFF

Coursen B. Conklin, A.M., M.D., *Managing Editor*
Wallace M. Yater, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

MEDICAL-DENTAL SERVICE BUREAU, INC.

*Washington Physicians and Dentists, Proprietors**

The citizenry of Washington of the lower-income bracket has at hand an opportunity to budget expense for medical care. Employers of labor have the facilities of a Bureau which will assure the financing of illness of their employees on partial-payment plan with the free choice of physician allowed the employee. In Washington the highest type of medical service is at hand. The financial status of the patient will not prevent the continuance of the desirable personal relationship with his physician. The Medical-Dental Service Bureau, Incorporated, *is* in operation. March 1, 1935, was the opening day. Advantages of the Bureau immediately apparent are: (1) The individual who needs an operation to correct existing physical defects handicapping health, or prolonged medical care, may apply through his physician to the Bureau; payments will be arranged satisfactory to both the physician and patient. The operation will be performed. Medical attention will be given. (2) Friendly interviews will reveal the amount of income and the budget for necessities of the first order, i.e., shelter, food, clothes. Charges for work to be done or already accomplished may be adjusted through contact between physician and Bureau. (3) The citizen needing medical or surgical care for himself or family may maintain his self-respect by having the work done by his family physician or surgeon. How different from entering wards of city hospital and being operated upon by a surgeon, although highly competent, who is often not known to the patient and is the recipient of no monetary remuneration from either the patient or the state.

The Medical-Dental Service Bureau is *not* a collection agency, yet the physician, Medical Society member, may send a patient who seems hopelessly in arrears, to the Bureau with a card of introduction for a review of his resources. A plan may be worked out for the making of regular payments. Employers of labor with the consent of the employee may make deduction from pay check. All charges, i.e., X-ray, laboratory and personal services of physician selected, may be placed in a lump sum which is amortized monthly.

A citation of the elements of one case adjusted by the local Bureau will serve a useful purpose:

> A patient was referred to a laboratory by his physician. It was found that the said patient was indebted to said laboratory for previous work done in 1933. An offer to make small payments to reduce the indebtedness had been unacceptable to the laboratory. Reference of this case to the Bureau by the physician brought about a financial arrangement agreeable to all concerned and the needed laboratory services for the patient.

People looking for medical care and wanting to pay have applied directly to the Bureau. The referring of patients to doctors is not a recognized function of the Bureau, however, an alphabetical list of physicians in a desired specialty is supplied.

This entire project is underwritten in part by your Society. Its overhead will be maintained eventually through the 10 per cent deduction from all moneys collected for you.

Remember, members of the local organized medical and dental societies alone have the privilege of referring patients. Use this privilege. Send patients with cards of introduction. Both you and your patient will find it well worth while. Go down to the Bureau yourself, meet the manager, Mr. Rawlings, survey the plant, learn how the Bureau operates and see how it fits into the Medical Economic Project of the Medical Society of the District of Columbia.

---

* Individual members of the local medical and dental societies as proprietors, should be aware of just what the Bureau is and what it purports to accomplish.

Medical-Dental Service Bureau
8th and Eye Streets, N.W., Washington
This building houses in addition the Central Admitting Bureau and the Permit Bureau of the Board of Public Welfare.

Offices, Medical-Dental Service Bureau

TRANSACTIONS OF THE SOCIETY

Stated Meeting, March 6, 1935

The following were duly elected to membership:

Active Members

Hill Carter, 1029 Vermont Avenue, N.W.
Joseph Dessoff, 1726 Eye Street, N.W.
James Lewald, Laurel, Maryland
John Joseph Lynch, 3120 N Street, N.W.
Norman Clifford Shoemaker, 1801 Eye Street, N.W.

Applicants for membership to be voted on in May, 1935:

For Active Membership

William Herman Clements, George Washington University—1931
Ronald Atmore Cox, George Washington University—1926
Emil J. C. Hildenbrand, University of Maryland—1930
Fordyce A. H. Johnson, University of Oregon—1930
Joseph John McHale, Georgetown University—1924
Manly Bronson Root, Syracuse University—1920
Homer King Vann, University of Maryland—1929
Clifton Robert Wallace, George Washington University—1907
James Edwin Wissler, University of Virginia—1930

For Associate Membership

James Wilbert Love, Medical College of Virginia—1928

A Nominating Committee was elected by the Society to select nominees for each elective office. The personnel of the committee is as follows:

Guy W. Leadbetter, *Chairman*
Loren B. T. Johnson
Preston A. McLendon
Howard F. Kane
Thomas S. Lee

HOUSE OF DELEGATES

Special Session

Chicago, February 15–16, 1935

Resolutions* introduced by the Society's Delegate, Dr. Henry C. Macatee:

Whereas, The President of the United States has recommended the enactment of laws for the social security of the people, particularly to provide for old age insurance, for unemployment insurance, and for sickness insurance; and

Whereas, The President has recommended that legislation for sickness insurance be delayed pending a complete study of the subject; and

Whereas, Various projects, devised by the experience of the medical profession and for the purpose of adjusting the existing medical resources to the needs of the people, are now in operation in various parts of the country; and

Whereas, A project has been inaugurated in the District of Columbia which seems to provide the necessary adjustment between people of all economic levels with existing medical resources in all fields; which provides for the medical care of both the indigent and the near-indigent by the medical profession as at present organized, and which includes the insurance principle supplied by the allied medical professions themselves; and

Whereas, The sinking funds accumulated by local medical-dental service bureaus, representing the insurance principle which protects both the sick and the relief agencies for the sick, is the contribution of the actual beneficiaries of the system and the controlled charitable contribution of the medical professions; and

Whereas, The administration of projects of the type herein contemplated is necessarily local in personnel and paid for by local funds; and

Whereas, The project inaugurated in the District of Columbia is susceptible of application in any city or county, with simple modifications to suit the needs and resources of each community; and

Whereas, In periods of economic depression in which local money resources may be insufficient, county, state, and federal relief funds can be expended most simply, directly and economically through channels of the type herein contemplated; therefore, be it

Resolved, By the House of Delegates of the American Medical Association in session assembled, that federal and/or state sickness insurance as a national or regional policy is opposed as being unwise socially, adversely affecting the standards of national life and character, the standards of medical practice, and the economic independence of the medical professions; and be it further

Resolved, That the American Medical Association offers the type of project now in operation in the District of Columbia as the type of social machinery for bringing the needy sick into proper relation with medical resources which it can and does approve; that the American Medical Association recommend to its constituent units the inauguration of similar projects in their respective areas; and be it further

Resolved, That the President of the United States be requested to use the weight of influence of the administration to delay legislation on sickness insurance until the operation of projects for sickness relief on the District of Columbia plan shall have revealed such defects or insufficiencies as may make some other method of relief necessary.

ANNUAL SCIENTIFIC ASSEMBLY

May 1st and 2nd

There are many attractive features in the program this year which no one can afford to miss. The titles of papers below listed leave very few subjects in the field of medicine not included. The essayists from out of town will be: Drs. J. Shelton Horsley of Richmond, and Soma Weiss of Boston. From our own membership are noted: Drs. William Holland Wilmer, Francis R. Hagner, James A. Cahill, Jr., Charles Stanley White, Harry H. Kerr, John A. Talbot and many others.

---

* These were referred to the Special Reference Committee, having undoubted influence on the committee's report. (See J. A. M. A., March 2, 1935, p. 751.)

An innovation in the program this year is a series of motion pictures which will be shown continuously in an improvised theater in the basement of the building.

The scientific exhibit, always a prominent feature, will include exhibits by Drs. J. Russell Verbrycke, Jr., Lee McCarthy, Janvier W. Lindsay, Oscar B. Hunter, James F. O'Donnell and many others. Read what follows and be convinced:

SCIENTIFIC SESSION

Wednesday, May 1, 1935, 9:30 A.M.

JAMES W. ESLER, M.D., CHAIRMAN, PROGRAM SUBCOMMITTEE, PRESIDING

Endometriosis. Jerome F. Crowley, M.D.

The Management of the Syphilitic. Frank J. Eichenlaub, M.D.

Lympho-Granuloma Inguinale with Special Reference to Stricture of the Rectum. William B. Marbury, M.D.

Résumé of Acute Appendicitis in Washington Hospitals for a Period of Two Years. Paul S. Putzki, M.D.

Diagnosis and Treatment of Ocular Tuberculosis. William H. Wilmer, M.D.

Wednesday, May 1, 12:30 P.M.

Complimentary Luncheon,* The Mayflower Hotel. Edmund A. Walsh, S.J., Guest Speaker: "Soviet Medicine."

Wednesday, May 1, 2 P.M.

A. B. BENNETT, M.D., PRESIDENT, PRESIDING

The Incidence, Diagnosis and Treatment of Cancer of the Stomach. J. Shelton Horsley, M.D., Richmond, Virginia.

Abdominal Symptoms in Diabetes Mellitus. John H. Lyons, M.D.

Pyelitis of Pregnancy. Francis R. Hagner, M.D.

(Title to be announced.) Howard F. Kane, M.D.

The Systematic Diagnosis of Anemias. John Minor, M.D.

The Present Status of the Treatment of Secondary Anemia. Stuart O. Foster, M.D.

The Size and Shape of the Heart. Bernard W. Leonard, M.D.

Public Meeting

Wednesday, May 1, 8:30 P.M.

A. B. BENNETT, M.D., PRESIDENT, PRESIDING

Guest Speaker—George C. Ruhland, M.D., Health Officer, District of Columbia

Surgical Dry Clinics

Thursday, May 2, 9:30 A.M.

W. WARREN SAGER, M.D., CHAIRMAN, SUBCOMMITTEE ON SURGICAL CLINICS, PRESIDING

Colostomy Preliminary to Uretero-enteric Anastomosis: A Case Report. W. Ross Morris, M.D.

Multiple Acute Osteomyelitis with Pyemia. James A. Cahill, Jr., M.D.

Hepatico-gastrostomy. Charles Stanley White, M.D.

Hemangioma of the Ovary in a Baby. Joseph P. Shearer, M.D.

A Case of Aortic Embolectomy. Harry Hyland Kerr, M.D.

Medical Dry Clinics

Thursday, May 2, 10:45 A.M.

LEWIS C. ECKER, M.D., CHAIRMAN, SUBCOMMITTEE ON MEDICAL CLINICS, PRESIDING

Artificial Pneumothorax: Its Place in the Treatment of Pulmonary Tuberculosis. Charles P. Cake, M.D.

Evaluation of Anti-meningococci Serum. Sara E. Branham, M.D.

Clinical Aspects of Gonococcal Arthritis. Walter K. Myers, M.D.

Mycotic Diseases of the Ear. Ella M. A. Enlows, M.D.

Meningitis in Children. E. Clarence Rice, M.D.

Thursday, May 2, 2 P.M.

R. M. LeCOMTE, M.D., 1ST VICE PRESIDENT, PRESIDING

Syncope. Soma Weiss, M.D., Boston, Mass.

Discussion of Erythremia with Emphasis on Treatment. George R. Huffman, M.D.

Fractures. John A. Talbot, M.D.

Some Factors in the Care of Permature Infants. E. Kirby Smith, M.D.

Myasthenia Gravis and the Myopathies. Antoine Schneider, M.D.

Clinical Versus X-ray Diagnosis of Sinusitis. Arthur M. Zinkhan, M.D.

The Treatment of Chronic Sinus Disease with Roentgen Rays. R. Rhett Rathbone, M.D.

Banquet

Mayflower Hotel, Thursday, May 2, 7 P.M.

---

* Complimentary tickets issued to all registrants at the Society's Building, 1718 M Street, on the morning of May 1. Be sure to get *your* ticket.

SCIENTIFIC EXHIBITS

1. Innervation of Abdominal Muscles in Relation to Surgical Incisions. Charles S. White, M.D., and J. Lloyd Collins, M.D.
2. Cardiac Pathology—Department of Pathology, George Washington University. Roger M. Choisser, M.D.
3. Gallbladder Facts and Aphorisms. J. Russell Verbrycke, Jr., M.D.
4. Urological Cases. Gallinger Municipal Hospital.
5. Fresh Tissue Demonstration. Oscar B. Hunter, M.D.
6. The Incidence of Syphilis in Washington. Russell J. Fields, M.D.
7. Pathological Demonstration—Garfield Memorial Hospital, Warwick Clinic, Children's Hospital and Episcopal Ear, Eye & Throat Hospital. Janvier W. Lindsay, M.D.
8. Tumors of the Skin. Lee McCarthy, M.D.
9. Roentgen-Ray Demonstration. Joseph F. Elward, M.D.
10. Obstetrical Roentgenology. Claude Moore, M.D.
11. Demonstration of Gallbladder Cases. Fred A. J. Geier, M.D.
12. Demonstration of the Blood Supply to the Heart—The Department of Anatomy, Georgetown University Medical and Dental Schools.
13. Exhibit on Plastic Surgery. Robert E. Moran, M.D.
14. The Department of Pathology—Georgetown University Medical and Dental Schools:
    1. Neoplastic Diseases
    2. Non-inflammatory Diseases of the Arteries
    3. Nemochromatosis
    4. Pathology of Addison's Disease
    5. Amyloid Disease

    The Department of Oral Surgery, Georgetown University Dental School:
    1. Dental Pathology

    The Section of Urology, Department of Surgery, Georgetown University Medical School:
    1. Cysts and Tumors of the Kidney
    2. Tuberculosis of the Kidney

    Eugene R. Whitmore, M.D.

MOVING PICTURES

May 1

10:00 A.M.	Vitamin Assay Technic. Laboratory and Purification of Diet.
10:15 A.M.	Gastric Ulcer.
10:25 A.M.	Intracranial Injuries of the New-born.
10:45 A.M.	Differential Diagnosis of Vomiting in New-born.
11:20 A.M.	Traumatic Surgery of the Extremities.
2:00 P.M.	Nephropexy.
2:15 P.M.	Miscellaneous Pediatric Cases.
2:40 P.M.	Evipal Anesthesia.
3:00 P.M.	Surgical Anatomy of Genito-urinary Tract.
3:20 P.M.	Action of Ovarian and Pituitary Hormones.
3:35 P.M.	Goiter Surgery.
3:55 P.M.	Multiple Pregnancy.
4:10 P.M.	Cataract Surgery.
4:30 P.M.	Pediatric Anomalies.
4:40 P.M.	Serum Management of Pneumonia.

May 2

10:00 A.M.	Elbow Surgery.
10:10 A.M.	Vitamin Assay Technic—Vitamins A, B and C.
10:25 A.M.	Physical Examination of the Infant.
10:50 A.M.	Cholecystectomy.
11:25 A.M.	A Study in Mineralization.
11:40 A.M.	Breech Extraction with Forceps.
12:00 Noon	Hernioplasty and Lipectomy.
2:00 P.M.	Relation of Absorbable Sutures to Wound Healing.
2:45 P.M.	Thoracoplasty.
3:15 P.M.	Varicocelectomy Unusual Tumor KODOCOLOR.
3:40 P.M.	Nasal Plastic.
4:00 P.M.	Ptosis (Eye Surgery).
4:20 P.M.	Essentials in the Study of the Electrocardiogram.
4:40 P.M.	Serum Management of Pneumonia.

The social events include a complimentary luncheon at the Mayflower Hotel, at which Dr. Edmund A. Walsh, S.J., will speak. This is an ideal opportunity to rub elbows with our many guests from out-of-town and to extend to them greetings. The banquet at the Mayflower Hotel, on Thursday evening, May 2, will bring to a fitting close our 1935 session. The feature of these annual banquets is the presence of wives and members of families of our members.

The public meeting is to be addressed by Dr. George C. Ruhland. A large attendance of the citizenry is assured. Give publicity to this opportunity to entertain your clientele in our building.

The Committee on Arrangements, responsible for arranging the outstanding program for 1935, has the following chairman and subchairmen:

Matthew White Perry, *General Chairman*

Subchairmen:

Charles Stanley White, *Attendance*
Stuart O. Foster, *Luncheon*
James W. Esler, *Program*
W. Warren Sager, *Surgical Clinics*
Lewis C. Ecker, *Medical Clinics*
Frank D. Costenbader, *Finance*
William W. Chase, *Printing*
Edgar M. McPeak, *Halls and Exhibits*
Victor R. Alfaro, *Banquet*
W. Preston Haynes, *Entertainment*
Coursen B. Conklin, *Registration*
William P. Argy, *Public Meeting*
A. Frances Foye, *Women Physicians*
Herman S. Hoffman, *Woman's Auxiliary*
Herbert P. Ramsey, *Publicity*

SOCIETIES WITH LIMITED MEMBERSHIP

The George M. Kober Medical Society

February 18, 1935:

Meeting at the Washington Golf and Country Club.

1. "Mechanism Involved in Back Injury and Disease." Frank M. Hand, M.D.
2. "Congenital Absence of a Portion of Intestine." Claude Moore, M.D.

The Louis Mackall Medical Society

February 14, 1935:

Meeting at the Ambassador Hotel.

1. "Use of Some Blood Examinations in Clinical Practice." Tomas Cajigas, M.D. (By invitation.)
2. "The Major Importance of Minor Infections." Philip A. Caulfield, M.D.

March 11, 1935:

1. "Differentiating the Common Dermatoses and Their Conservative Method of Therapy." Russell J. Fields, M.D.
2. "The Relation of Upper Respiratory Infections to Mastoid and Sinus Disease in Children." H. King Vann, M.D.

Pan American Medical Association

Washington, D. C., Chapter

February 10, 1935:

Meeting held at the Legation of Panama, through the courtesy of the Minister, His excellency, Dr. Ricardo J. Alfaro. The Minister, Dr. Alfaro, in expressing his pleasure at acting as host to the Association, stated among other things that the first president of his country was a distinguished physician and that the Republic of Panama owed much of its success to medical science which made possible the building of the Canal.

The program:

"Early Diagnosis and Treatment of Cancer of the Colon." Fred W. Rankin, M.D., Lexington, Kentucky. Discussion: Drs. William Earl Clark, James F. Mitchell, Charles Stanley White and J. C. Bloodgood.

A thorough review was given of the condition, its various types and the results which may be expected from the different operations at several stages, with the indications for each surgical method. The paper was discussed by Drs. William Earl Clark, James F. Mitchell and Charles Stanley White, all of whom described their own experience and praised Dr. Rankin's contribution from both the scientific and practical standpoints to a very difficult field. Dr. J. C. Bloodgood, of Baltimore, emphasized the need of getting patients into the surgeon's hands without undue delay in order to get the best results.

Among the distinguished guests present at the meeting were noted Dr. M. Paz Baraona, former President of Honduras, and Dr. Larissa R. de Echegaray, of Russia and Spain.

March 10, 1935:

Meeting at Georgetown University, in honor of the late Colonel Bailey K. Ashford, the discoverer of the cause of "tropical anemia" in Puerto Rico.

Henri De Bayle, M.D. President	Robert U. Patterson, M.D. Vice President

A. A. Moll, M.D.
Secretary

SMITH-REED-RUSSELL LECTURE

The fourth lecture at the School of Medicine of the George Washington University was given before the faculty and students on Tuesday, March 5, by Dr. E. V. McCollum, Professor of Biochemistry of the Johns Hopkins Medical School. Dr. McCollum's subject was "The Rôle of the Vitamins in Relation to the Bodily Resistance to the Infectious Diseases."

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS

The District of Columbia-Maryland-Delaware-Virginia-West Virginia sectional meeting of the American College of Surgeons will be held in Washington, D. C., on Thursday and Friday, April 11–12, 1935. Headquarters will be at the Mayflower Hotel. An active Committee on Local Arrangements, with Dr. Ralph M. LeComte as chairman, and Dr. Elijah W. Titus as secretary, has plans well in hand for an excellent meeting.

There will be held on both days, operative clinics, hospital conferences, medical motion pictures, scientific sessions in general surgery and eye, ear, nose and throat surgery. Of special interest will be the community health meeting to be held Friday, April 12, at Constitution Hall.

Among the distinguished visitors expected are: Drs. Alfred W. Adson of Rochester, George W. Crile of Cleveland, Claude F. Dixon of Rochester, Robert B. Greenough of Boston, John O. McReynolds of Dallas, Fred W. Rankin of Lexington, Kentucky, Charles L. Scudder of Boston.

A cordial invitation to attend these interesting meetings is extended not only to the Fellows and hospitals of the various states included, but to the entire medical profession at large.

THE KOBER LECTURE FOUNDATION

GEORGETOWN UNIVERSITY

According to the terms of this Foundation—

"The income of $10,000 is to be used annually in awards for lectures by men who have contributed to the progress and achievement of the medical sciences or preventive medicine; the lectures to be delivered under the auspices of the Georgetown University in Washington, D. C., and to be published as a continuation of a series of lectures inaugurated March 28, 1920, as a vindication of animal experimentation."

The Executive Committee, in recent session, selected Dr. Laurence S. Otell as the Lecturer. The title of his discourse will be "Thorium as a Diagnostic Agent." The lecture will be given March 28, 1935, at Gaston Hall, Georgetown University. The Reverend David V. McCauley, S. J., Regent of the Medical School is in charge of arrangements. All members of the medical profession or of groups interested in Roentgenology are cordially invited.

MARCH SERIES—HEALTH TALKS Y. M. C. A.

Program sponsored by the Speakers' Bureau, Dr. Don S. Knowlton, Subchairman, of the Committee on Public Information

March 7: "Progress in the Treatment of Eye Diseases." G. Victor Simpson, M.D.
March 14: "How About Your Heart?" Earl R. Templeton, M.D.
March 21: "Cancer: Some Popular Misconceptions." Oscar B. Hunter, M.D.
March 28: "Recent Advances in Treatment of Genito-urinary Diseases." William P. Herbst, Jr., M.D.

MARCH RADIO BROADCASTS*

March 12: "Infected Teeth and Adjacent Tissues—A Health Menace." C. Willard Camalier, D.D.S.
March 12: "Scarlet Fever." James G. Cumming, M.D.
March 19: "The Little Red Sentinel that Stands on the Street Corner." Mr. H. A. Friede, Superintendent, Fire Alarms, District of Columbia.
March 26: "The Facilities of the Washington Heart Association." Mrs. Wade Martin, Executive Secretary, Washington Heart Association.

---

* Arranged by the Committee on Public Information, Dr. Herbert P. Ramsey, chairman; Dr. R. Lyman Sexton, subchairman.

APRIL PROGRAM, SOCIETY ACTIVITIES

Wednesday, April 10:

"Radical Operations for Cancer." Robert B. Greenough, M.D., President, American College of Surgeons.

Wednesday, April 17:

"Disease in Old Age." O. H. Perry Pepper, M.D., Professor of Medicine, University of Pennsylvania School of Medicine.

Wednesday, April 24: (*Postponed from January 23*)

1. "The Early Clinical Recognition of Adrenal Insufficiency Resulting from Partial or Total Atrophy of the Adrenal Glands." George L. Weller, Jr., M.D.
2. "A Further Report on the Dissociation of the Thyroid from the Sympathetic Nervous System and Reduction of the Blood Supply to the Thyroid in the Treatment of Angina Pectoris." James Alexander Lyon, M.D., and Edmund Horgan, M.D.
3. "The Hygiene of Hay Fever." Harry S. Bernton, M.D.

PUBLIC HEALTH

HEALTH DEPARTMENT OF THE DISTRICT OF COLUMBIA

Statistical Statement, Week Ending March 2, 1935

It will be noted that there is a seasonal increase in the incidence of scarlet fever. For the protection of public health, physicians are cautioned to be on the lookout for mild cases of the disease.

If there is doubt as to the diagnosis, the case should be reported as a "suspect." Thus the Department assumes responsibility for provisional quarantine. The public should have the benefit of protection in doubtful cases.

CONTAGIOUS DISEASES

REPORTABLE DISEASES	CASES REPORTED WEEK ENDING MARCH 2, 1935	CASES DISCHARGED	
		By death	By recovery
Diphtheria*	25	0	16
Scarlet Fever	55	1	37
Smallpox	0	0	0
Whooping Cough	5	0	2
Typhoid Fever	0	0	0
Measles	13	0	4
Chickenpox	73	0	32
Meningitis, epidemic	6	2	0
Tuberculosis	23	10	0
Pellagra	0	0	0
Poliomyelitis	0	0	0
Influenza	3	2	4
Lethargic encephalitis	0	0	0
Pneumonia	23	29	10

* 6 Carriers.

IMMUNIZE NOW—STAMP OUT DIPHTHERIA

May Day—Child Health Day has become an established institution throughout the United States. It was inaugurated in 1924 by the American Child Health Association for the purpose of calling the attention of parents, communities, and the public in general to the need for measures to protect the health of children. The project for 1935 is diphtheria immunization. This was chosen because there has been but little reduction since 1930 in the number of deaths from diphtheria throughout the country. While particular emphasis will be laid on immunization this year, it is not intended that the project be limited to 1935. On the contrary one of the chief objectives is to have the work continued year after year by the medical profession.

Immunize Now—Stamp Out Diphtheria, is the slogan. The measures proposed are: To immunize all children between the ages of six months and six years.

To make early immunization a routine practice by all physicians. The majority of pediatricians do immunize the babies under their care during the first year of life. Physicians in general practice also should follow this procedure.

This project offers opportunity for many medical societies and many physicians to assume their rightful leadership in the preventive medical work of their communities.

MODERN WEAPONS AID PHYSICIANS IN FIGHT ON TUBERCULOSIS

The treatment of tuberculosis must in all cases be based on diagnosis. Only a doctor can decide whether treatment is necessary and how it should be carried out.

This is the underlying principle and aim for the 1935 educational campaign of the National Tuberculosis Association and its affiliated state and local organizations, which is scheduled to begin April 1. The importance of early diagnosis will be urged in order that treatment can be started promptly and with more prospect of a cure, or at least of arresting the disease.

Our knowledge of treatment has made tremendous strides and it is timely to inform the public more fully. To prevent misconceptions facts should be presented on today's methods of treatment, such as collapse therapy, the importance of the sanatorium, and social rehabilitation of the tuberculous patient. This is the basis of the slogan for the campaign: "Fight Tuberculosis With Modern Weapons."

An appreciation of scientific medicine is a major objective of health education and the modern treatment of tuberculosis inspires respect for scientific medicine. Fuller knowledge of the treatment of tuberculosis dispels much of the fear of the disease and prompts the person who may be worried about his health to go to his physician.

The poster being made available suggests that medical science is a moving, living enterprise in step with the times. Attractive leaflets explain concisely and authoritatively the main aspects of the treatment of tuberculosis: General treatment, need and purpose of the sanatoria, collapse therapy, and economic and social-rehabilitation.

Tuberculosis through the ages has been surrounded by many deep-rooted fallacies. Much has been done to dispel these notions in the last 50 years and the knowledge gained of the disease has brought tuberculosis out of darkness. It is proposed in this campaign to further enlighten the public and to urge the importance of obtaining scientific medical service.

Physicians can help to attain this objective by cooperating with the tuberculosis societies and the other participating agencies and thus assure a wider acceptance of accurate and sound knowledge.

AMERICAN MEDICAL GOLFERS PLAY IN ATLANTIC CITY, MONDAY, JUNE 10

The American Medical Golfing Association will hold its twenty-first annual tournament at the Northfield Country Club in Atlantic City on Monday, June 10, 1935.

Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in the nine events. Trophies will be awarded for the Association Championship, thirty-six holes gross, The Will Walter Trophy; the Association Handicap Championship, thirty-six holes net, The Detroit Trophy; the Championship Flight, First Gross, thirty-six holes, The St. Louis Trophy; the Championship Flight, First Net, thirty-six holes, The President's Trophy; the Eighteen Hole Championship, The Golden State Trophy; the Eighteen Hole Handicap Championship, The Ben Thomas Trophy; the Maturity Event, limited to Fellows over 60 years of age, The Minneapolis Trophy; the Oldguard Championship, limited to competition of past presidents, The Wendell Phillips Trophy; and the Kickers Handicap, The Wisconsin Trophy. Other events and prizes will be announced at the first tee.

A. M. G. A. MEMBERS IN EVERY STATE OF THE UNION

Dr. Charles Lukens of Toledo is president and Dr. C. H. Henninger of Pittsburgh and Dr. John B. Morgan of Cleveland are vice-presidents of the American Medical Golfing Association, which was organized in 1915 by Dr. Will Walter, Dr. Wendell Phillips and Dr. Gene Lewis, and now totals 1,100 members representing every state in the union. The living past presidents include Dr. Thomas Hubbard of Toledo, Dr. Fred Bailey of St. Louis, Dr. Edward Martin of Media, Pa., Dr. Robert Moss of LaGrange, Texas, Dr. Charlton Wallace of New York, Dr. Will Walter of Chicago and Charlottesville, Va., Dr. James Eaves of Oakland, Calif., Dr. Chester Brown of Danbury, Conn., Dr. Samuel Childs of Denver, Dr. W. D. Shelden of Rochester, Minn., Dr. Walter Schaller of San Francisco, Dr. Edwin Zabriskie of New York, Dr. Frank A. Kelly of Detroit, Dr. John Welsh Croskey of Philadelphia, and Dr. Homer K. Nicoll of Chicago. The first president of the A. M. G. A., Dr. Wendell Phillips of New York, who played in every tournament since 1915, died on November 16, 1934.

Atlantic City Committee

The Atlantic City Committee is under the chairmanship of Dr. Walt P. Conaway, 1723 Pacfiic Ave., Atlantic City. He will be assisted by Drs. I. R. Beir, John Pennington, Alfred Westney, and Rostin White.

The Northfield Country Club of Atlantic City is described by Chairman Conaway as "certainly one of the most interesting courses in this district. Many championships have been held at Northfield, and I am sure the visiting doctors will be delighted with it in every sense of the word. It has a beautiful club house with every facility ready for the pleasure of the guest."

Application for Membership

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the Executive Secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank. Participants in the A. M. G. A. tournament are required to furnish their home club handicap, signed by the secretary. No handicap over 25 is allowed, except in the Kickers' (Blind Bogey). Only active members of the A. M. G. A. may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

The twenty-first tournament of the American Medical Golfing Association promises to be a happy affair. The officers anticipate some two hundred medical golfers from all parts of the United States and Canada will attend.

INDUSTRIAL MEDICINE AND MEDICAL ETHICS

(*Continued from page 83*)

ent, and sometimes he appears to be also very ignorant. The world of industry has changed and conditions in industry are not what they were 20 years ago. Industry now has to protect itself from such practices, and physicians in industry maintain that they have the right to assist.

Company employees and physicians treating employees have been assisted many times by the Company's Medical Department and Company physicians, and never to my knowledge has an employee or a physician treating an employee suffered any inconvenience or loss thereby on the Company's account without good reason for it. Of course, Company physicians make mistakes at times, but the Company tries to be fair and employees are always given the benefit of any doubt.

It is the sincere desire of the Company that the methods employed in its Medical Department shall be in accord with the underlying principles of Medical Ethics.

William Fowke Ravenel Phillips, M.D. (1863–1935), professor of anatomy, Georgetown University School of Medicine, formerly teacher of anatomy and dean of George Washington University School of Medicine, from which school he was graduated in 1890, and superintendent of George Washington University Hospital (1904–1908), died February 16, 1935, of pneumonia. Dr. Phillips had served on the faculty of the University of Alabama and the Medical College of South Carolina. He was born in Bedford County, Virginia, July 13, 1863, the son of Dinwiddie P. and Nannie F. Walden Phillips. His active career had been that of teacher of anatomy. His many students will always recall his genial spirit and unusual ability to impart knowledge. He became an active member of the Medical Society of the District of Columbia, April 5, 1905, changing his status to that of associate in 1918. His Society memberships included the Philosophical Society of Washington, the Medical Society of South Carolina, the South Carolina Medical Association, the Association of American Medical Colleges, the Federation of State Medical Boards of the United States, the American Clinical and Climatological Association, and the American Medical Association. Dr. Phillips was unmarried.

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV APRIL, 1935 NUMBER 4

STONE IN THE URINARY TRACT. REMARKS ON RECENT CONTRIBUTIONS TO OUR KNOWLEDGE OF THE ETIOLOGY*

H. A. FOWLER, M.D.
Washington

The subject of calculous disease of the urinary tract is bound to be of interest to the staff of a general hospital because of its very frequent occurrence and the difficulty often experienced in making a differential diagnosis in atypical cases and those presenting complications. It is the most frequent lesion of the urinary tract requiring major surgery in its treatment. It is often devastating in its effects when treatment is neglected.

It is of interest to the internist who is frequently called upon first to give relief to those patients suffering acutely with stone and upon whom rests the responsibility of giving wise counsel as to what should be done after the acute attack subsides. It should likewise be of interest to the general surgeon and those in the various surgical specialties who not infrequently find it necessary to consider the possibility of stone in the urinary tract in making a differential diagnosis in obscure cases with abdominal symptoms. It is well known that a renal stone is a great mimic and in its symptomatology may at times simulate lesions of any of the intra-abdominal organs. Most frequent confusion exists, of course, in the upper right quadrant of the abdomen, the area of diagnostic pitfalls. Scarcely a day passes in general hospital practice when the question of the differential diagnosis between stone in the kidney or ureter, appendicitis, cholecystitis, gastro-intestinal lesions, sacro-iliac disease, or disease of the female adnexa does not come up. And even today, with the possibility of confusion in diagnosis so generally recognized, mistakes are inevitable, and an innocent appendix is occasionally removed for the relief of symptoms produced by a stone trapped within the renal pelvis or working its way down the narrow lumen of the ureter.

It has been said that the success in the treatment of disease depends largely upon our knowledge of its exact etiology. Measured by this standard our treatment of calculous disease of the upper urinary tract is unsatisfactory in one important respect. Great progress has been made in recent years in the surgical treatment of this condition. This has been possible through (1) more complete and exact diagnosis with all that this implies, and (2) refinement in surgical technic insuring more complete removal of all stones with least damage, both anatomical and functional, to important organs. The distinct trend of surgery in this condition has been, as you all know, toward conservatism.

Despite the great progress made, the fact remains, however, that when surgery is employed for the relief of unbearable pain or to preserve vital organs it is applied only to the results of disease; to the repair of damage already done. It is in no way concerned with the underlying cause of the condition and does not interfere with this except as a by-product of the surgical attack, such, for example, as securing better drainage and diminishing infection. As a result we have come to look upon calculus formation as a symptom and not a disease, in much the same way that we regard hydronephrosis as a symptom; obstruction is the disease. It is the symptom of some underlying cause of dysfunction in the mechanism of excretion of certain substances, chiefly waste products occurring normally in the urine. This mechanism is finely adjusted to the requirements of the organism in a great variety of conditions of health and disease, since most individuals never suffer from stone. In certain cases, however, this balanced adjustment breaks down, precipitation of crystalloids takes place and under favorable circumstances a stone is formed.

---

* Read at the Staff Meeting, Emergency Hospital, January 24, 1935.

Thus, while surgery is employed in the removal of a foreign body, however necessary and successful this may be, it is nevertheless employed in the unprofitable task of treating a symptom of disease without directly attacking the disease itself. Hence, we should expect recurrence after surgical removal in about the same percentage as in that group in which the stone passes spontaneously. Recurrence is in fact all too frequent, and is one of the most distressing and embarrassing sequels of surgery for stone to both patient and surgeon alike.

With the foregoing considerations in mind it seems abundantly clear that the problem of the etiology of calculous disease and the mechanism of stone formation are of paramount importance. This is an age-old problem. It has naturally aroused the keenest interest. A vast amount of study and investigation has been devoted to the attempt to solve it. Despite this fact, however, the problem still remains unsolved. We cannot explain, for example, how or why a stone forms in an apparently healthy kidney. There is, so far as I know, no satisfactory explanation for this phenomenon. We do know a great deal about the mechanism of stone formation, the conditions necessary for the further growth of a stone when once the nucleus has formed, and its recurrence after surgical removal. Many factors have been suggested as playing an important rôle in stone formation, such as diet, heredity, soil (drinking water), climate, stasis due to obstruction, infection, etc. These have been thoroughly explored and their importance as secondary factors has been evaluated. Among the secondary factors, those which favor but do not initiate the process, stasis and infection certainly are important. I have recently reviewed the evidence relating to the rôle of coccus infection in the formation and recurrence of stone.

During the past few years important contributions to our knowledge of the etiology of urinary calculus have been made which have opened up new fields for further exploration and suggest a new approach to the study of the problem. Before discussing these, however, I wish to refer briefly to certain facts established by the contributions of physical chemistry which appear to me basic, and to certain results of clinical observation.

CHARACTER OF THE URINE AS A SOLVENT

It was both natural and logical in studying the problem of urinary calculus formation to determine the composition of these stones and to study the occurrence of these substances in the urine. In health the stone-forming substances present in the urine, the crystalloids, are in solution and pass out for the most part unnoticed. It has been determined that these urinary crystalloids are sparingly soluble in pure water. For example, 5.265 mg. of oxalic acid are soluble in 1500 cc. of pure water, corresponding to the average daily output of urine. However, the daily excretion of oxalic acid is between 15 and 20 mg. Thus, 3 to 4 times the maximum concentration of this substance in pure water is excreted daily dissolved in the urine. This amount is said to be greatly exceeded in certain pathological conditions. Another crystalloid, uric acid, also an important stone-forming substance, is excreted to the amount approximately of 1 gram daily. This amount is soluble in 25 liters of water. Hence, it is 10 to 20 times more soluble in urine than in pure water. It is clear, therefore, that there must be some constituent of the urine which markedly increases its solvent action upon these relatively insoluble substances.

Physical chemists tell us that this increased solvent action is due to the presence in the urine of certain colloids which protect the crystalloids and prevent their precipitation. The presence of these protective colloids in the urine and the important rôle they play in stone formation has been known for a long time. But their exact nature and the manner in which they exert their protective influence is even now only imperfectly understood. It is definitely established that they are not albuminous substances. It is generally assumed that these urinary colloids are in a state of very fine subdivision. Each colloid particle attracts and attaches to its surface large numbers of molecules of the crystalloids. The latter are thus prevented from precipitating out from the supersaturated urine. The crystalloids are said to be adsorbed by the colloids and the process is called adsorption. The finer the subdivision of the colloids the greater their power of adsorption by reason of the increase in surface area presented. Conversely, a decrease in the number of particles of the colloids through coalescence or gelling decreases their power of adsorption by reason of diminished surface area. The principle of adsorption appears to be well recognized in physical chemistry.

In any event it appears definitely established that a urinary calculus is a product of crystal growth, and its formation follows the laws of crystallization occurring in colloidal solutions; it is composed of 2 substances, (a) the stone-forming, inorganic materials or crystalloids, and (b) the colloids or organic matrix. The simple experiment of dissolving out the inorganic materials with hydrochloric acid, leaving the organic framework as a perfect mold of the original stone, will show its dual structure.

In health, therefore, there is a proper balance between the crystalloids and colloids of the urine by which the former are held in solution, any imbalance between these resulting in a deposit of the crystalloids. The crystals thus formed depart from their usual forms, tend to become spherical and to coalesce. The disturbance in balance between these two substances may conceivably occur as the result of a sudden increase in the crystalloids of the urine by which the colloids are overwhelmed. They are then no longer able to hold the latter in solution and precipitation occurs. This is the obvious explanation for hypersecretion calculosis. It is interesting to note that it is impossible to produce a urinary calculus in feeding experiments by increasing the amount of crystalloids occurring in a normal diet. Stones may be formed experimentally in animals by feeding large amounts of oxamid, but this substance does not occur in a normal diet. This fact led to the belief that diet does not play an important part in stone formation. A decrease in the colloids of the urine by precipitation or by the formation of a gel would, by altering the surface area, also result in an imbalance. Similarly a change in their character, such as the introduction of a foreign colloid, such as undoubtedly occurs in infection, might produce the same result. What actually brings about this imbalance in the absence of infection we do not know. All is mere speculation. However, from certain clinical observations it appears probable that an important factor is local in character and exists at the kidney level, else how explain the occurrence of unilateral stone? It is probable that if we knew more about the nature and especially about the source of the urinary colloids we would find that the kidney itself plays a more important rôle in their production than is now generally supposed.

We seem to have reached an impasse in our effort to solve the problem of the etiology of stone by the chemical approach.

RECENT CONTRIBUTIONS

It not infrequently happens in medicine that the investigation of a problem in a certain field may bring out results entirely unexpected in what appears at first a totally unrelated field. An illustration of this is found in the study of a rare bone disease, osteitis fibrosa cystica, first described by von Recklinghausen and since known by his name. This disease is characterized by a demineralization of the bones of the body and its later stages by cyst and tumor formation. Many years later (1925) it was discovered that this particular disease of the skeletal structures was associated with and was a manifestation of hyperparathyroidism. It has since been shown that other manifestations of the disease are not so uncommon. Of particular interest is the occurrence of nephrolithiasis, which has aroused keen interest in the study of this disease. The literature is already large and is rapidly growing. An excellent paper on the subject by Albright, Aub and Bauer, appearing in the J. A. M. A., April 21, 1934, gives an excellent summary of our present knowledge of this interesting disease. This contribution is based upon a study of 17 cases at the Massachusetts General Hospital in each of which a tumor of the parathyroids was found at operation. A brief review of this work will serve to bring out the relation between hyperparathyroidism and renal calculus.

Hyperparathyroidism is defined as a disease usually due to a functioning adenoma of the parathyroid glands. There results an increased production of the parathyroid hormone which, in turn, leads to a disturbance in the metabolism of calcium and phosphorus. Apparently these small glands through their internal secretion preside over the metabolism of these two substances so important to normal health. This disturbance is determined by definite changes noted in the X-ray film of the bones, the normal storehouse for these mineral constituents of the body; it is easily measured by blood-chemistry examinations. The disease is characterized by an increase in the serum calcium level and a decrease in serum phosphorus level. An increase in the excretion of these two substances in the urine occurs. The dysfunction in calcium and phosphorus metabolism leads to changes in the bones, the blood and the urinary tract. Increased excretion of these substances in the urine often results in the formation of renal calculi. In certain cases extensive deposit of calcium in the collecting tubules of the kidney causes contracture and renal insufficiency.

Several clinical types of the disease are recognized. In one, hyperparathyroidism with nephrolithiasis, the presenting symptoms are associated with renal stones. In this type there may be no demonstrable skeletal changes. This is most significant. Polyuria and polydipsia may be so marked as to suggest diabetes insipidus. Renal colic or some other manifestation may be the first and only symptom in this group.

In a paper by Barney from the urological service of the same hospital a total of 18 cases of this disease proved by operation are reported, in which 11, or 61.1 per cent of these showed a high plasma calcium level. This is most interesting and suggests that hereafter this examination of the blood should become routine in all our calculus cases.

The incidence of calculus formation in other series of cases of hyperparathyroidism reported in the literature varies considerably, but in all it appears relatively high. It would appear in a carefully studied series of cases the incidence of calculus is 10.5 per cent. As pointed out by Barney, interesting as these results are, there are certain points which require further study. If hyperparathyroidism is the result of endocrine dysfunction, the effect should be general. Why do calculi not occur in all cases? Why are they not bilateral in all cases? Albright suggests a possible explanation based upon the acuteness or chronicity of the process. In the terms of the colloidal theory of stone formation one might explain the occurrence of stones in hyperparathyroidism on the basis of the excessive excretion of crystalloids-hypersecretion calculosis.

VITAMIN-DEFICIENCY THEORY

Another contribution to the etiology of calculous disease has been made recently and has aroused a good deal of interest. This is the vitamin-deficiency theory. It has been held by many writers that diet played an important rôle in stone formation, the assumption being that a diet rich in stone-forming substances would favor the production of urinary calculi. It was felt that in no other way could one explain the geographic distribution of stone. The occurrence of calculous disease in different countries has been extensively investigated. Certain "stone areas" in various countries are well recognized, where calculous disease is very prevalent. In analyzing the habits of the people in these areas as regards diet it was impossible to explain the occurrence of stone on the basis of excessive consumption of limited kinds of food. However, it is difficult to explain the geographic distribution of the disease on any other basis than diet and water. That the disease may be due to a deficiency diet is a new conception and has only recently come into prominence. It would be interesting and profitable, if time permitted, to trace the various steps in the progress of our knowledge of foodstuffs and foods in relation to nutrition, leading to the discovery of vitamins, the term coined and introduced by Funk about 1910 to designate the active principle in foods, the lack of which causes polyneuritis in man and animals. To those interested a concise review will be found in McCollum's contribution, Chapter xiv, Human Biology and Racial Welfare, edited by E. V. Conway, published by Hoeber in 1930; also the chapter by the same author in Chemistry in Medicine. The first fat-soluble vitamin was not discovered until 1912, now known as Vitamin A. But the modern era of research leading to our present knowledge of vitamins and the important rôle they play in nutrition were ushered in by the investigations of Eijkman of Batavia, Java on the disease in fowls analogous to that occurring among the rice eaters of the orient and called beri-beri. This was found to be a deficiency disease now recognized as due to the lack of Vitamin B in the diet. It was the confirmation of this work of Eijkman a decade later by Funk that led to his coining the term "vitamin." It was not until 1916 that the system of nomenclature now in use was adopted for designating these important active principles in foods, small amounts of which suffice to maintain health and promote growth in the young, and the lack of which leads to characteristic specific changes now recognized as "deficiency diseases."

A's happens frequently in the history of medicine, it is interesting to note how the discovery of the principle of deficiency disease was foreshadowed as early as the middle of the eighteenth century and led to practical results; although the underlying cause as we know it today was unknown. Up to this time the absence of vegetables in the diet of sailors aboard ship on long voyages caused such ravages from scurvy that naval activity was almost continually paralyzed. James Lind, an English physician connected with the Royal Navy, published in 1753 a treatise on scurvy in which he observes that "the scurvy alone, during the last war, proved a more destructive enemy, and cut off more valuable lives than the united efforts of the French and Spanish arms." How much this reminds us of the ravages of typhoid fever among our troops in the Spanish-American War!

Lind recommended lemon juice in the treatment of scurvy. While not his discovery, he was responsible for bringing this specific into prominence. Six years before the publication of his treatise he made the following observation while aboard ship on 12 scurvy patients similar in type: "The consequence was, that the most sudden and visible good effects were perceived from the use of oranges and lemons; 1 of those who had taken them, being at the end of 6 days fit for duty. The spots were not indeed at the time quite off his body, nor his gums sound; but without any other medicine, than a gargarism of elixir vitriol, he became healthy before we came into Plymouth, which was on the sixteenth of June. The other was the best recovered of any in his condition; and being now deemed pretty well, was appointed nurse to the rest of the sick." It should be noted that as usual where there is so much red tape, Lind's recommendations were not adopted until after the lapse of 43 years—1 year after his death. It was not until 1795 that the order was issued for the use of lemon juice in the Navy, and the scurvy immediately disappeared from the service.

The experimental basis for the dietary deficiency theory of stone formation dates from the work of Osborn and Mendel in 1917. In the course of their studies on nutrition they noted the presence of urinary calculi in a certain number of rats used in their experiments. In checking over these findings they noted that in every instance in which calculi were found the rats had for some time during the experiment been on a diet deficient in Vitamin A. Evidently this observation did not stimulate further investigation of this matter at the time and did not attract immediate attention, for it was not until 1926 that Fujimaki in Japan made a similar observation and published his results showing conclusively that calculi in the urinary tract could be produced in rats by a diet deficient in Vitamin A. Likewise, extensive experiments by McCarrison in India, in 1926 to 1928, led to similar results. These results have been confirmed by others, most recently by Higgins of Cleveland, who carried out his experiments with great care, using albino rats.

His results may be briefly summarized as follows. It was found difficult to keep the rats alive when the Vitamin A deficient diet was used continuously, hence this vitamin was added at intervals for a short time. During the first 30 days bladder stones formed infrequently; after that the percentage of positive cases increased rapidly. At 200 days, 88 per cent showed calculi. Renal stones developed later than bladder stones. No renal stones formed under 60 to 90 days. At 250 days, 41 per cent showed renal stones. Infection of the bladder occurred in 30 to 60 days; of the kidneys in 60 to 90 days. Therefore, infection occurred at about the onset of stone formation. This infection was not specific as determined by the technic of Rosenow. In the later stages of the experiment infection and calculi were of about the same frequency. Keratinization of the epithelium was usually present after 10 weeks, but Higgins found no evidence that these cells acted as a nucleus of the stones which formed. Alkaline reaction of the urine was a constant finding. The addition of ammonium chloride decreased the percentage of animals in which calculi formed. By adding Vitamin A to the diet the formation of stone is prevented. There is also some evidence to show that stones once formed disappear by adding Vitamin A to the diet.

Such is the experimental basis of the vitamin-deficiency theory of stone formation in the urinary tract. It remains to be shown to what extent the process demonstrated in laboratory animals, particularly rats, is applicable to humans. No doubt we shall soon see in the literature reports of the clinical application of these results from the laboratory. Lower, a chief of the Cleveland Clinic, under whom Higgins' experimental work was done, reports that they are now prescribing routinely a diet high in Vitamin A to patients who have been operated upon for renal and ureteral stones. They have also observed a small series of patients with renal stones who refused operation or had bilateral stones who have been receiving a diet high in Vitamin A and producing an acid ash. In each of two instances a small stone in the lower calyx too large to pass spontaneously disappeared entirely within 4 months, according to X-ray evidence. In 2 patients multiple large bilateral renal stones decreased definitely in size within 13 months. Another patient with a large silent renal stone completely filling the left kidney has taken the prescribed diet for 6 months, during which time he has passed 323 small calculi. Previously this patient had never passed sand or a stone in the urine. Lower states that these results suggest that "the administration of Vitamin A may come to be regarded as a necessary factor in the treatment of all patients with urinary calculi."

In conclusion, I may say that the problem of the etiology of urinary calculous disease still remains unsolved. Recent investigations have added to our knowledge of the subject. They have opened up a new approach and a new method of attack of this important and perplexing problem. We are now nearer its solution than ever before.

THE RELATION OF THE FRONTAL LOBES TO VISCERAL FUNCTION*†

James W. Watts, M.D.

Philadelphia

Introduction

During the latter part of the nineteenth century electrical stimulation of the brain came into vogue. Bochefontaine, Bechterew, François Frank and others directed experiments toward a study of the rôle of the brain in the regulation of visceral function. In their enthusiasm for localization an "excitor center" and an "inhibitor center" was described for almost every internal organ. While this was being done in France, Russia and Germany, Ferrier, Beevor, Horsley, and later Sherrington in England were examining the effects of cortical stimulation upon the extremities. It was found that stimulation of the motor area produced discrete movements of the digits which were similar to voluntary movements. No apparatus was required to record the responses, and the experiments were easily performed. The effects of electrical stimulation of the motor cortex in the monkey were so similar to the focal convulsive attacks being described by Hughlings Jackson that the results of the experiments could be applied immediately to the clinic. Soon, interest in the representation of the extremities in the cortex eclipsed the interest in autonomic representation of the internal organs. Now physicians are again turning their attention to the rôle of the brain in the regulation of visceral function and seeking explanations for some of the visceral manifestations associated with intracranial disease.

In 1932, Watts and Fulton began a study of the effect of lesions of the hypothalamus upon the gastrointestinal tract in monkeys. They found that lesions of the hypothalamic region were far more prone to cause gastrointestinal disturbances with gastric, duodenal and esophageal erosions and even perforation than lesions elsewhere in the nervous system. Since monkeys had not been previously used in such experiments, it was essential that a careful study be made of their gastrointestinal tracts under laboratory conditions as a basis for interpreting changes that might follow hypothalamic lesions. For this purpose complete autopsies were performed upon all animals that died or were sacrificed during the year (80 in number), attention being directed particularly to the gut. In the course of these autopsies intussusception with intestinal obstruction was found to be the cause of death in 3 otherwise healthy animals (Watts and Fulton, 1934) (Fig. 1). All 3 intussusceptions occurred in monkeys from which parts of both frontal lobes, including the premotor area, had been removed. These findings, which were suggestive of a relation between cortex and gut, led us to investigate the influence on gastrointestinal activity exerted by the

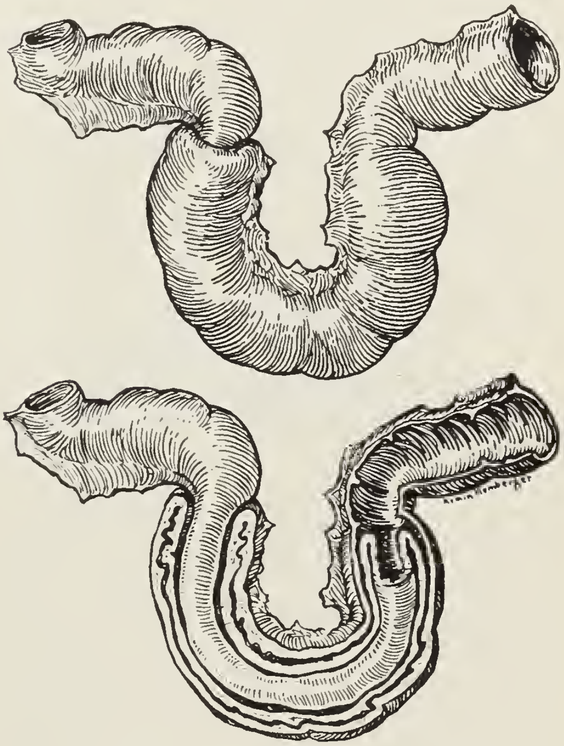


Fig. 1. A Drawing of an Obstructive Intussusception Disclosed at Autopsy in a Monkey from Which All Cortical Tissue Anterior to Both Central Sulci Had Been Removed. (Watts and Fulton)

cerebral cortex. In this paper a brief résumé is presented of the results obtained, with special reference to their clinical significance.

---

* Read before the Joint Meeting of the Section on Neurology and Psychiatry and the Society, February 13, 1935.

† From the Neurosurgical Service of the Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania.

Review of Literature

Stimulation. During the latter part of the nineteenth century experimental evidence accumulated which indicated that the cerebral cortex influenced gastrointestinal movements. In 1876, Bochefontaine pointed out that faradic stimulation of the region of the sigmoid gyrus of the dog caused peristaltic contraction of the pyloric region of the stomach followed by inhibition of the pylorus itself, and that sometimes such stimulation caused increased movements of the small and large intestines. Often peristalsis of the large intestine so induced was so forceful that it carried the fecal contents ahead of it.

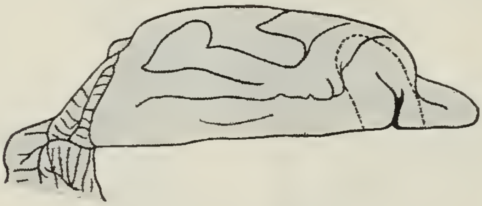


Fig. 2. Bechterew's Drawing Showing the Area From Which Electrical Stimulation Influenced Gastro-intestinal Activity

These observations were substantially confirmed by Hlasko and by Openchowski, and were greatly extended by Bechterew and Mislawski and by Osipoff. Bechterew and Mislawski found that stimulation of certain points near the cruciate sulcus gave rise to vigorous movements of the gastrointestinal tract, whereas excitation of others caused inhibition of these movements (Fig. 2). May, who used both dogs and monkeys, was unable to confirm Bechterew's results. More recently, Sheehan has found that stimulation of the monkey's frontal lobe rostral to the motor area causes no effect upon the 'resting' (unfed) stomach, but frequently leads to prompt inhibition of peristalsis in the 'active' (fed) stomach.

Release. Only three years after Bochefontaine published his results, Ott and Field observed that quiet peristalsis in the cat's intestines became very active after the brain was sectioned posterior to the thalami. Similar results were obtained by Bechterew and by Lurje, indicating that some part of the brain rostral to the section exerts an inhibitory influence upon peristaltic movements. In view of the work of Cushing and of Beattie and Sheehan, it is quite possible that the inhibitory influence may emanate to some extent from the hypothalamus, but the earlier studies on cortical stimulation and those more recently carried out by Sheehan, together with the observations on experimental intussusception (Watts and Fulton) indicate that the cortex also plays an important part in regulating and inhibiting the activity of the gut.

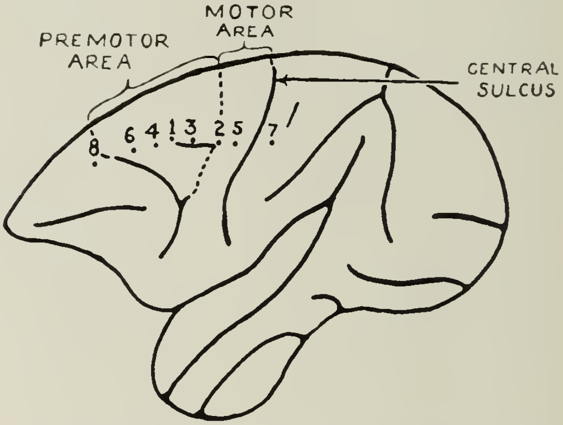


Fig. 3. Diagram of the Cerebral Hemisphere of a Monkey Showing the Points Stimulated. (Watts and Fulton)

Experimental Results

Under light ether anesthesia, various parts of the cortex were stimulated faradically for periods of 1 to 2 minutes, precautions being taken to prevent the spread of current (Watts and Fulton). With the abdominal cavity open and the intestines floated in warm saline, the visceral organs were observed directly. On stimulating the premotor area, (Fig. 3) a latent period of about 20 seconds usually elapsed before changes in the gastrointestinal tract occurred. Marked increase in peristaltic activity of the cecum and lower part of the small intestine was generally the first change noted, but in some animals striking "peristaltic rushes" were initiated in the colon by such a stimulus. Vigorous peristalsis of the small intestine also occurred, but more often ring-like bands of contraction developed during application of the stimulus, and these as a rule were not transmitted. The persistence of such sharply defined bands of contraction in one segment, aided by peristaltic waves from cephalad segments, resulted in some instances in the invagination of the active portion of the gut into the lumen of the passive segment lying in continuity with it. Often the intussusceptions so produced were multiple, usually formed in the ileum, and did not persist permanently, i.e., they did not cause obstruction under the conditions of the experiment.

Vigorous intestinal movements could be produced by stimulation of many parts of the premotor area, but not from every point within this area. The portion bordering on the superior precentral sulcus, from which Bucy and Fulton obtained ipsilateral movements of the extremities, gave the most consistent increase in intestinal activity. Once activity had been aroused in the intestines by premotor stimulation, faradization of the prefrontal region and the postcentral gyrus sometimes caused augmentation of activity, but primary stimulation of these regions in the intact cortex were without effect. In one animal from which the premotor area had been extirpated 5 months previously, stimulation of the prefrontal region and the postcentral gyrus caused slight increase in peristalsis but never intussusception. In no experiment did stimulation of the motor area even when very strong, influence movements of the gut. In some experiments cortical stimulation caused increased secretion of gastric juice. Bilateral vagotomy abolished most of the cortical responses although occasionally strong stimulation of the premotor area in such a preparation caused slight increase in peristalsis. The consequences of sympathectomy were not studied.

Discussion

Cortical Autonomic Epilepsy. The experiments just described suggest an explanation of the long recognized visceral symptoms and signs associated with focal seizures in man, especially those which occur in the absence of increased intracranial pressure. When pressure is increased the symptoms of nausea and vomiting cannot be attributed solely to cortical derangement. However, in uncomplicated focal seizures visceral phenomena may be of localizing significance. Watts and Frazier recently presented case histories of 2 patients, in whom manifestations such as nausea, epigastric distress and vomiting served to abort, or were substituted for, epileptic convulsions. In 1 instance, nausea followed by vomiting aborted individual focal seizures affecting the extremities. In the other instance several focal convulsions occurred early in the anamnesis, then followed an interval of 4 years in which there were periodic episodes of nausea, epigastric distress, and vomiting, but no convulsions. After 4 years the characteristic convulsive seizures were resumed.

In their study of the cerebral localization of epileptic manifestations, Penfield and Gage observed that an aura of pain or epigastric distress may arise from activity of the cerebral cortex. Under local anesthesia in conscious patients they found that stimulation of area 7a caused pain in the right lower quadrant of the abdomen in 1 case, and stimulation of the same area elicited an epileptic attack preceded by the usual epigastric aura in another.

The observations of Penfield and Gage establish sensory autonomic representation in the cortex for the gastrointestinal tract in man. The experiments of Watts and Fulton establish motor autonomic representation in the cortex for the gastrointestinal tract in the monkey. Correlating these results with occurrence of epileptic manifestations such as nausea and vomiting associated with focal epileptic convulsions or occurring alone as in the patients described, Watts and Frazier were led to postulate motor autonomic representation for the gastrointestinal tract in the cortex of man. It is probable, therefore, that nausea, epigastric distress and vomiting may be the result of neuronal discharge from the motor autonomic portion of the cerebral cortex. We also believe that epigastric aura and other abdominal sensations are usually not 'referred' sensations, but are rather the result of vigorous, and probably abnormal movements of the gastrointestinal tract.

Morbid hunger. When a patient says that his appetite has doubled since he has been sick, or when one sees a patient on the ward with brain tumor who eats the usual meals and clamors constantly for food in between meals, it is a very striking symptom. In his series of 105 cases of frontal lobe tumors, Frazier observed morbid hunger in 3 patients. Brief case histories of these patients are given below.

Case 1: E. D., (File No. 16981), a woman of 28 years, entered the University Hospital, September 23, 1929, with a history pointing to increased intracranial pressure, voracious appetite, inordinate thirst and urgency and frequency of urination. Two months before admission, when she was 7 months pregnant, the patient developed severe occipital headaches and vomiting. The child was delivered, but the headache and vomiting continued. In the latter part of August, 1929, her vision began to fail, she appeared irrational at times, and complained of numbness of the right arm and leg. Her appetite became voracious and thirst inordinate. She drank large quantities but her throat always felt dry. She voided about 4 ounces of urine every half hour, and complained of dysuria. On examination, the patient was very uncoöperative, complained continually of pain in the head and neck and asked repeatedly for water. She was completely blind, had bilateral choked disc with optic atrophy. There was paresis of both external rectus muscles. Smell and taste were greatly diminished. The tendon reflexes could not be obtained. While in the hospital bulimia and polydipsia were very striking. The patient drank 5000 cc. of fluid a day and continually asked for water. She voided every half hour and unless a receptacle was immediately available, she voided in bed, and in spite of precautions, the bedclothes had to be changed several times a day. The urine was normal and its specific gravity was 1010.

GLUCOSE TOLERANCE TEST

	Blood	*Urine*
Fasting specimen	117 mg.	neg.
½ hour after glucose	158 mg.	neg.
1 hour after glucose	194 mg.	trace
2 hours after glucose	225 mg.	neg.

Bulimia and polydipsia persisted until within a few days of her death and periodic urination lasted until the end. The patient died October 8, 1929, without having been operated upon, and autopsy revealed a fairly well circumscribed astrocytoma, 8 x 6.5 x 6 cm., of the left frontal lobe. It occupied the superior frontal convolution, lay adjacent to falx cerebri medially, and encroached upon the lateral ventricle and the corpus callosum. The pituitary gland was enlarged, being 18 x 12 x 10 mm. The bladder was contracted and empty. The mucosa showed no congestion, and it was considered unnecessary to cut sections for microscopic study.

Case 2: L. D., (File No. 28741), was a man of 45 years, whose illness began with the sudden onset of a ravenous appetite (the details are given elsewhere by Watts). Associated with the appearance of the excessive appetite were increased thirst, increased libido and morbid somnolence. This patient subsequently proved to have a huge meningeal fibroblastoma extending from the falx cerebri to the orbital gyri. The tumor completely covered areas F1 and F2 except for a small area at the frontal pole, and compressed most of F3 and the precentral gyrus.

Case 3: H. S., (File No. 30132), a man of 49 years, was admitted to the University Hospital, October 29, 1934, complaining of headache and loss of vision. In May, 1934, he felt weak, lost all energy, and at this time he became aware of an increase in his appetite. He had always had a good appetite, eating as much as 2 pounds of steak and 4 pounds of potatoes at a meal, but since the onset of his illness, he had often eaten 3 pounds of steak and 6 pounds of potatoes at a meal. Headaches began in August, 1934, and the following month his vision began to fail. Since September 14, he had been in bed, his vision had failed rapidly, and he had had 4 dizzy attacks. The patient appeared somewhat somnolent, but when aroused he was coöperative, euphoric and talkative. There was bilateral choked disc of 3.5 D, a left homonymous hemianopsia with involvement of the right macula, and slight weakness of the left side of the mouth. With a dynamometer the right grip was 130 and the left was 80. The feet were held far apart in walking, and the patient tended to fall to the left. Roentgenograms of the skull showed the pineal body displaced to the left. A cystometric determination revealed a definitely hypotonic bladder, the details of which are given elsewhere (Frazier, Watts and Uhle). A large subcortical glioma infiltrating the right frontal and temporal lobes was exposed and partly removed by Dr. Frazier, and the patient was discharged from the hospital, November 28, improved. Histologically the tumor was glioblastoma multiforme.

In 1887, Mills reported 2 cases of brain tumor and pointed out that the upper as well as the lower branches of the facial nerve may be paralyzed by a cortical lesion. One of his patients, a boy of 16 years, fell from a chair, vomited, and during the next few days developed headache, diplopia, sensations of choking, and weakness of the left arm, which progressed to a hemiplegia with complete facial paralysis. After the first week he became ravenously hungry and bolted his food at all times. Bulimia persisted until the patient's death, which occurred a week after the appearance of this symptom. Autopsy revealed a brain tumor adherent to the dura mater presenting at the posterior part of the second frontal convolution. The greatest diameter of the tumor was 2½ inches. Cases of morbid hunger following injury to the brain have been described by Paget, Bechterew, and Sollier and Delageniere. One of the cases referred to by Bechterew was a child who received a depressed fracture in the midfrontal region. When the child recovered consciousness she cried constantly that she wanted more food. Bulimia continued 4 days after the splinters of bone had been removed from the frontal region. The frontal lobe was also involved in the case of Sollier and Delageniere. In 1909, Spiller reported a case of glioma of the pons in which intense hunger was a prominent symptom, and remarked that he had observed 2 other cases of brain tumor presenting this symptom. It was Spiller's impression at that time that the location of the tumor was not significant in relation to the production of excessive hunger. Recently, 2 cases of cerebral trauma exhibiting bulimia were reported by Brouwer, and a case of frontal lobe tumor with this symptom has been described by Watts.

Little significance could be attached to these isolated reports until Fulton, Jacobsen and Kennard observed that monkeys after bilateral removal of the frontal areas ate several times as much as normal animals. Thinking that the ravenous appetite might be due to some metabolic disturbance, Bruhn studied the basal metabolic rate of these animals as well as of normal monkeys. Bruhn's results soon made it apparent that in spite of their excessive appetites and activity, these animals had a normal basal metabolic rate. However, he found that the basal metabolism may be elevated after bilateral premotor extirpation, presumably due to spasticity of the extremities. In discussing morbid hunger last year Fulton suggested that the symptoms of morbid hunger might be due to increased motility of the stomach, and Watts added that it might be the result of food being hurried through the alimentary canal at a rate which does not allow time for adequate digestion and absorption.

Bladder Dysfunction in Cases of Brain Tumor. Further evidence of the regulation of visceral function by the brain comes from observations upon the urinary bladder.

In his series of 105 frontal lobe tumors, Frazier found incontinence of urine in 19 patients and urinary disturbances of other kinds in 6 patients. Although incontinence might have been attributed to aphasia, indifference or other mental changes in some patients, it did not appear to explain this symptom in others. Often a patient was rational, well oriented, without signs of mental deterioration, yet he never asked for a urinal and his bed clothes had to be changed several times a day. One patient did not seem to know he had voided until he became aware of his wet clothing. Another, when asked why he voided in bed, replied that he had to urinate and could not wait.

A possible explanation became apparent when urinary incontinence was considered in the light of our previous studies upon the relation of the cerebral cortex to gastrointestinal function. Our investigations (Watts and Uhle, and Frazier, Watts and Uhle), have demonstrated that bladder dysfunction, that is, neurogenic bladder comparable to that seen in lesions of the spinal cord, may be caused by intracranial tumor, presumably due to a disturbance of the autonomic representation for the bladder in the brain.

Neurogenic bladder associated with disease, injury or developmental defects of the spinal cord is well known by its clinical symptoms and its cystoscopic picture. In recent years much has been added to our knowledge of neurogenic bladder by the investigations of Rose, Denny-Brown and Robertson, and Holmes by comparison of the volume-pressure relationship when fluid is run slowly into the bladder. Learmonth has contributed greatly to the neurophysiology of the bladder by his observations upon resection and stimulation of the presacral nerve.

There is considerable experimental evidence pointing to regulation of bladder function by the cerebral cortex. It has been shown that stimulation of certain portions of the cerebral cortex leads to vigorous contraction of the bladder with emptying of its contents (Bechterew, Hunsicker and Spiegel, Langworthy and Kolb, Watts, Uhle, Kelly and Burke). The work of Barrington and of Langworthy and Kolb demonstrate that section of the brain stem produces an alteration of bladder function. Depending upon the level of the section, a hypertonic bladder with periodic urination or a hypotonic bladder with retention of urine will result.

The principle of the method which we employed in our patients with brain tumor is the measurement of bladder pressure in millimeters of mercury (Muschat and Johnston). Increasing amounts of fluid are run slowly into the bladder through a catheter, and the pressure is recorded after each 50 cc. are introduced. A record is made of the capacity at which the patient has the first desire to void, the first sensation of discomfort, the first pain, and also if leakage occurs about the catheter.

Eleven patients with tumors in various parts of the brain were examined (2 frontal, 3 frontotemporal, 1 temporal, 1 parietal, 1 in the corpus callosum, 2 in the diencephalon, and 1 in the cerebello-pontine angle). Patients with hypertonic curves gave histories of urgency and periodic involuntary urination. Two patients with hypotonic curves had difficult urination for several months followed by retention requiring catheterization. The 6 other patients had no urinary symptoms, but the cystometric determinations revealed hypotonic curves.

These findings in patients with brain tumor correlated with the experimental evidence led us to conclude that bladder dysfunction in patients with brain tumor is probably the result of a disturbance of bladder representation in certain parts of the brain or of tracts descending from them. Until further observations are made no attempt will be made to state where bladder representation lies in the human brain. However, the high incidence of bladder dysfunction in patients with frontal lobe tumor is suggestive that the frontal lobes exercise some degree of influence. A discussion of whether a hypotonic bladder indicates a lesion in one part of the brain and a hypertonic bladder, a lesion in another part, will be deferred to a future communication.

SUMMARY

Removal of cortical influence by extirpation of both premotor areas results in increased peristalsis and in some instances in intussusception. Faradic stimulation of the premotor area and certain adjoining parts of the cerebral cortex initiates vigorous movements of all parts of the intestines. Evidence is given indicating that cortical representation for the gastrointestinal tract contains both excitatory and inhibitory components.

Epigastric aura and other visceral sensations associated with focal convulsive seizures or occurring independently usually are not so-called referred sensations, but result from vigorous, and, perhaps, abnormal gastrointestinal movements.

Morbid hunger associated with brain tumors, cerebral vascular disease, and accidental injury to the brain, is probably due to irritation or destruction of the gut representation in the cortex, or of tracts arising there.

Evidence is presented indicating that incontinence of urine and other forms of bladder dysfunction in patients with brain tumor are probably the result of a disturbance of bladder representation in certain parts of the brain or of tracts descending from them.

BIBLIOGRAPHY

BARRINGTON, F. J. F.: The Relation of the Hind-brain to Micturition. Brain, 1921, **44**, 23.

BARRINGTON, F. J. F.: The Effect of Lesions of the Hind- and Mid-brain on Micturition in the Cat. Quart. J. Exper. Physiol., 1925, **15**, 81.

BEATTIE, J., AND SHEEHAN, D.: The Effects of Hypothalamic Stimulation on Gastric Motility. J. Physiol., 1934, **81**, 218.

BECHTEREW, W.: Die Functionen der Nervencentra. Third Edition. Jena, Gustav Fischer, 1911.

BECHTEREW, W., AND MISLAWSKI, N.: Ueber Centrale und Periphere Darminnervation. Arch. f. Physiol., Supplement Band, 1889, **13**, 243.

BOCHEFONTAINE: Étude Experimentale de l'influence Exercée par la Faradisation de l'ecorce Grise du Cerveau sur Quelques Fonctions de la vie Organique. Arch. de Physiol. norm. et path., 1876, **3**, 140.

BROUWER, B.: Klinische Demonstratie van Organische Zenuwziekten. Voordracht Gehouden in de Vergadering van der geneeskundige Kring te Amsterdam op 23 Oct., 1934.

Bruhn, M. J.: The Respiratory Metabolism of Infrahuman Primates. Am. J. Physiol., 1935 (in press).

Cushing, H.: Peptic Ulcers and the Interbrain. Surg., Gynec. & Obst., 1932, **55**, 1.

Denny-Brown, D., and Robertson, E. G.: The State of the Bladder and its Sphincters in Complete Transverse Lesions of the Spinal Cord and Cauda Equina. Brain, 1933, **56**, 397.

Frazier, C. H.: A Critical Analysis of 105 Cases of Frontal Lobe Tumor. 1935 (in press).

Frazier, C. H., Watts, J. W., and Uhle, C. A. W.: Source of Visceral Impulses. Proc., Assoc. Research Nerv. & Ment. Dis. 1935 (in press).

Fulton, J. F.: Some functions of the Cerebral Cortex. Autonomic Representation in the Cerebral Cortex. J. Michigan M. Soc., 1934, **33**, 175.

Fulton, J. F., Jacobsen, C. F., and Kennard, M. A.: A Note Concerning the Relation of the Frontal Lobes to Posture and Forced Grasping in Monkeys. Brain, 1932, **55**, 524.

Hlasko, B.: Beitrage zur Beziehung des Gehirns zum Magen. Inaugural—Dissertation. Dorpat., 1887.

Holmes, G.: Observations on the Paralyzed Bladder. Brain, 1933, **56**, 383.

Hunsicker, W. C., Jr., and Spiegel, E. A.: Conduction of Cortical Impulses to the Autonomic System. Proc. Soc. Exper. Biol. & Med., 1934, **31**, 974.

Langworthy, O. R., and Kolb, L. C.: The Encephalic Control of Tone in the Musculature of the Urinary Bladder. Brain, 1933, **56**, 371.

Langworthy, O. R., and Kolb, L. C.: Demonstration of Encephalic Control of Micturition by Electrical Stimulation. Bull. Johns Hopkins Hosp., 1935, **56**, 37.

Learmonth, J. R.: A Contribution to the Neurophysiology of the Urinary Bladder in Man. Brain, 1931, **54**, 147.

Lurje, quoted by Schwab, E.: Die Innervation des Darmes. Muller's Lebensnerven und Lebenstriebe. Berlin, Julius Springer, 1931.

May, W. P.: The Innervation of the Sphincters and Musculature of the Stomach. J. Physiol., 1904, **31**, 260.

Mills, C. K.: Two Cases of Brain Tumor. J. Nerv. & Ment. Dis., 1887, **14**, 707.

Muschat, M., and Johnston, C. G.: A Simple and Inexpensive Cystometer. J. Urol., 1932, **27**, 273.

von Openchowski: Ueber Centren und Leitungsbahnen für die Musculatur des Magens. Arch. f. Phisol., 1889, **13**, 549.

Osipoff, V. P.: Über die Rindcentra des Dickdarmes. Obozr. psichiat. nevrol., 1898, **3**, 193.

Ott, I., and Field, G. B. W.: A New Function of the Optic Thalami. J. Nerv. & Ment. Dis., 1879, **4**, 654.

Paget, S.: On Cases of Voracious Hunger and Thirst from Injury or Disease of the Brain. Tr. Clin. Soc., London, 1896–1897, **30**, 113.

Penfield, W., and Gage, L.: Cerebral Localization of Epileptic Manifestations. Arch. Neurol. & Psychiat., 1933, **30**, 709.

Rose, D. K.: Determination of Bladder Pressure with Cystometer; New Principle in Diagnosis. J. A. M. A., 1927, **88**, 151.

Sheehan, D.: The Effect of Cortical Stimulation on Gastric Motility in the Monkey. J. Physiol., 1935, **83**, 177.

Sollier, P., and Delageniere, H.: Le Centre Cortical des Fonctions de l'estomac d'apres un cas d'abces du Cerveau d'origine Traumatique. Rev. Neurol., 1901, **9**, 1103.

Spiller, W. G.: Brain Tumor. J. A. M. A., 1909, **53**, 2078.

Watts, J. W.: The Influence of the Cerebral Cortex on Gastro-intestinal Movements. J. A. M. A., 1935, **104**, 355.

Watts, J. W., and Frazier, C. H.: Cortical Autonomic Epilepsy. J. Nerv. & Ment. Dis., 1935, **81**, 168.

Watts, J. W., and Fulton, J. F.: Intussusception—The Relation of the Cerebral Cortex to Intestinal Motility in the Monkey. New England J. Med., 1934, **210**, 883.

Watts, J. W., and Fulton, J. F.: The Effect of Lesions of the Hypothalamus upon the Gastro-intestinal Tract and Heart in Monkeys. Ann. Surg., 1935, **101**, 363.

Watts, J. W., and Uhle, C. A. W.: Brain Tumor and the Neurogenic Bladder. Arch. Neurol. & Psychiat. Proc., Phila. Neur. Soc., 1935 (in press).

Watts, J. W., Uhle, C. A. W., Kelly, R. P., and Burke, J. D.: Effects of Cortical Stimulation and Extirpation upon the Urinary Bladder. (In preparation.)

Lobar Pneumonia and Digitalis.—The question is still undecided whether the action of digitalis benefits patients suffering from lobar pneumonia. This question is, of course, distinct from the one which asks whether giving digitalis to such patients acts at all. To the second question, the evidence permits an affirmative answer. In view of the value which giving digitalis may possess, a decision on the first question is eminently desirable. A solution has not been possible because a simple test is not available. Reliance must still be placed on its average behavior. . . . .

TABLE 1.—Lobar Pneumonia. Patients in the Hospital of The Rockefeller Institute, February, 1911, to July, 1932

	Total Patients	*Number Recovered*	*Number Died*	*Mortality %*
Men	1063	862	201	18.9
Women	393	307	86	21.9
Total	1456	1169	287	19.7

Method.—For the investigation now to be reported an analysis of the records of 1456 patients observed in the Hospital of The Rockefeller Institute has been undertaken (Table 1). The patients were treated during a period of 21 years, from 1911 (February) to 1932 (July). Theoretically the length of time may be regarded a disadvantage; practically this is not necessarily the case for a study of the fatalities throughout this period shows that the deviation from the average death rate, month by month, is ±4.21% and seems negligible. This result compares not unfavorably with that in the Bellevue-Yorkville district in the period when the investigation at the Bellevue Hospital was taking place. Carrying on a study of an infectious disease over a brief period may, in point of fact, present a disadvantage; the time selected may lie within a time of epidemic manifestation. If a longer view is to be taken, spreading the duration of observation may conceivably be an advantage. . . . .

Conclusions. 1. Giving digitalis does not seem to influence the course of events in lobar pneumonia.

2. Its action, in favorable cases, in which auricular fibrillation and auricular flutter occur, appears to be beneficial.

3. The outcome in lobar pneumonia depends on the "severity of the disease," which in turn depends especially on the presence of bacteriemia, the number of pulmonary lobes involved, and the existence of complications.

4. It is not certain whether the action of digitalis precipitates the occurrence of auricular fibrillation. If it does so, the number of cases is small, especially in the earlier decades.

5. The proximity of death does not determine the onset of auricular fibrillation. Even when it was present, it ceased in 10 of 18 cases before exitus.

6. Heart block did not occur during the febrile period of lobar pneumonia except in those cases to which a sufficient amount of digitalis was given to bring it about.—*Extract from article by* Alfred E. Cohn, M.D., *and* William H. Lewis, Jr., M.D., *New York City, American Journal of the Medical Sciences, April, 1935, p. 457.*

GASTRO-INTESTINAL DISORDERS IN THE PSYCHOSES*†

Alexander Simon, M.D.
Washington

The history of medicine is replete with examples of the observations that have been made on the frequent coincidence of psychic disorders and digestive disturbances. Hippocrates' words were "Vomiting with restlessness, a low pitched voice, and a fixed stare are the signs summoning the advent of mania," and his opinion was that gastro-intestinal disturbances often created hypochondria and insanity. His treatment consisted of purging and travel, a form of therapy still in vogue among physicians today. Galen also placed the origin of mental illness in the stomach. It was not so many years ago that one investigator stated that when the symptom of diurnal variation was observed (that is, morning and evening variations in moods, a symptom commonly present in depressive reactions), it indicated a lesion of the posterior stomach wall; since while the patient was recumbent during the night, the stomach contents pressed on the posterior gastric wall and was the reason why these patients felt worse in the morning!

Gastro-intestinal Disorders as an Etiological Factor in Psychoses

We are still in the throes of an era in which focal infection is highly emphasized as an etiological factor in many diseases, especially in those of which we know very little. This was carried to its logical conclusion in the therapy of psychiatric disorders by the late Henry A. Cotton. "The so-called functional psychoses we believe today to be due to a combination of many factors, but the most constant one is the intracerebral biochemical cellular disturbance arising from circulating toxins originating in chronic foci of infection situated anywhere in the body, associated probably with secondary disturbance of the endocrine system. Instead of considering the psychosis as a disease entity, it should be considered as a symptom and often a terminal symptom of a long continued masked infection, the toxemia of which acts directly on the brain." With this conception as the basis of his attack he removed the teeth and tonsils from his patients and performed various operations on the gastro-intestinal tract. Over 20 per cent of his cases presented lesions of the intestinal tract, in his opinion, as evidenced by a history of constipation, vomiting, abdominal pain, signs of chronic appendicitis, or "full colon," and radiographic evidence of intestinal stasis. In 250 cases he even went so far as to perform complete colectomies with the appalling death rate of 30 per cent. The fallacy of his favorable results lies in the vagaries of psychiatric diagnosis, the frequency of recurrence and also of spontaneous recovery, and the large subjective element present in such a study.

Auto-intoxication, when this conception was fashionable, also played its rôle as an etiological factor in mental illness. One heard of colonic stasis, proptosis, incompetence of the ileocecal valve and the "cess pool of the lower intestinal tract" but fecal discharge was just as septic after surgical or medicinal therapy as before. One can hardly sterilize several feet of sewer with a few pills, but one still sees reports of cures in depressions or cases of dementia praecox as the result of therapy directed at the gastro-intestinal tract, treatments such as catharsis, enemata, dietary regimens, colonic irrigations, etc.

Nonspecific Character of Psychoses Due to Gastro-intestinal Disease

As an etiological agent of mental illness gastro-intestinal disorders play a very minimal rôle, but as a symptom of various psychic disorders they are extremely common. In the presence of an acute toxemia, no matter where the source of infection, gastro-intestinal or otherwise, a delirioid reaction is apt to occur, but this has no specific characteristics. It is remarkable, moreover, how a mild comparatively innocent gastric upset may initiate a psychosis in one patient, while in another with a severe ulcer or carcinoma there may be none. These differences we must attribute to variations in the stability of the individual personality. Liver disturbances are occasionally associated with psychotic reactions. A simple jaundice may change the psyche so that depression, excitement, irritability, or temper tantrums may appear. Acute yellow atrophy in its advanced stages often presents a delirioid reaction which frequently ends in convulsions, coma and death. Attempts have been made to correlate these psychic changes with disease of the basal ganglia as in Wilson's disease (hepatolenticular degeneration). Very seldom does a psychosis occur in cirrhosis of the liver, but it may take on the form of that seen in Korsakoff's psychosis, with memory disturbances, disorientation, retrospective falsification and peripheral neuritis.

---

* From Saint Elizabeth's Hospital, Washington, D. C.

† Read before the joint meeting of the Section on Neurology and Psychiatry and the Society, February 13, 1935.

Gastro-intestinal Symptoms in Psychoses

Among psychotic patients gastro-intestinal disorders are of frequent occurrence. One can hardly appreciate the difficulties that beset the path of an internist to whose lot it falls to diagnose and treat these cases. Too often their complaints are considered as delusional, and we are very much chagrined to find that they have misinterpreted the pain of an ulcer, carcinoma, or perforation to fit their delusional schemes. To unravel the relationship between the psychic and somatic disorders in these patients is often an impossible task, since they have so lost contact with reality that we cannot establish a thinking relationship with them.

The depressive states in particular are prone to have gastro-intestinal complaints of a varied character. Anorexia, constipation, heart burn and vague abdominal pains are most frequent. We are apt to treat these symptoms according to the branch of medicine that attracts us. The internist is prone to emphasize the physical symptoms, the psychiatrist the psychic ones. They are both partly right, but too often we forget the patient in our interest over his organs or psyche. The gastro-enterologist's examination frequently reveals decreased motility of the stomach and intestines, a pylorospasm or a spastic colon. The psychiatrist says the patient is suffering from a depression with a good prognosis and that as the depression lifts the physical symptoms will disappear. In manic patients, on the other hand, a huge appetite is the rule; constipation is a rare complaint and the barium meal does not reveal spasms or hypomotility. Catatonic cases characterized by stupor, inactivity, mutism, and forced tube feeding present, as a rule, hypomotility of the gastro-intestinal tract, and it is not at all unusual that the meal should take 5 or more days to pass through. As the patient recovers from his catatonic state he is apt to develop a ravenous appetite, consume several trays of food during a meal, gain in weight, lose his constipation, and the motility of his gastro-intestinal tract returns to normal. General paretics also may ingest enormous amounts of food and yet not gain weight. But the reverse is just as frequently seen, with anorexia to the point of starvation, vomiting, aerophagia and constipation.

Psychosomatic Correlations

What is the relation of all these symptoms to the psychic disorders, and what rôle does the nervous system play here? It is well known that certain organs lend themselves most easily to the expression of psychic conflicts, the gastro-intestinal and cardiovascular systems particularly, because of their close relationship with the autonomic nervous system. The purging effect of a fear or anxiety state is common knowledge. An increase in emotional conflict results frequently in spasms at the cardia or pylorus of the stomach or at the anal sphincter. Disgust, excitement, or fear will either inhibit or reverse peristaltic movements and cause vomiting.

With our changing concept of disease we should no longer treat organs but individuals, and we realize now that an individual is something more than a group of organs. To label a patient as neurotic or psychotic and to regard his many somatic complaints as delusional does not help him very much. We must realize that many of his gastro-intestinal symptoms are the result of physiological dysfunction and that these are frequently correlated with emotional conflicts. Our failure to find actual organic lesions does not preclude the presence of functional disorders. We are becoming more and more interested in the series of psychological and physiologic events which actually precede definite tissue changes. We first considered all disease somatic and structural, then we realized that it might be either organic or psychic, but we must also appreciate that every organic illness must necessarily have a functional element. It is not a question of the disorder being either organic or functional, but rather that it is both organic and functional.

The expression of affective conflicts in the viscera is necessarily limited to certain neurologic pathways, the autonomic nervous system which controls contractile and secretory elements. Such dysfunction may express itself as gastric hyperacidity, oversecretion of mucus, cardiospasm, pylorospasm, etc. A long-continued spasm with complete or partial closure of a tubular organ necessarily leads to muscular hypertrophy with secondary dilatation; the regular distribution of body fluids is hindered; and inflammation, ulcer formation or perforation may occur. Thus, a fundamentally functional disorder may lead to a structuralized expression, which itself is the result of a long chain of physiologic dysfunctions arising from a psychological disorder. With such a concept, it is often impossible to state where the functional ends and the organic begins.

Although the autonomic nervous system is not under direct voluntary control of the cortex, it is greatly concerned with the psychosomatic correlates we are considering. The centers of autonomic control are being located higher and higher in the nervous system due to the admirable recent researches of Cannon, Cushing, Fulton, and Watts. Fairly well defined centers of sympathetic and parasympathetic control have been localized in the medulla, hypothalamus and cortex, and the nervous pathways by which are expressed the emotional conflicts, so much emphasized by the psychiatrists, are becoming more clear, so that now the full pathway from cortex to viscera can be postulated. The hypothalamus, an area which in neurologic conceptions integrates emotional reactions, is also the seat of both parasympathetic and sympathetic centers. Cushing has demonstrated that lesions in this area are apt to cause peptic ulcer.

PEPTIC ULCER

With these conceptions as a background one can relate psychiatric and neurologic views to prove a very definite psychosomatic correlation in the production of peptic ulcer. This is one of the most common disorders of civilized man and occurs more often in males during the most active period of life when they are apt to be overwhelmed by burdens and conflicts. There is little doubt of the association of emotional stresses with the production of some acute ulcers, perforations and hematemeses, and a careful history will often reveal a severe emotional upset 4 or 5 days before the acute illness. Attempts have been made, in fact, to cure peptic ulcer, not by the use of dietary, medical or surgical therapy, but by psychotherapy, a form of treatment too often neglected. The ulcer is the end-result of a pathologic physiology which in turn is dependent on psychic conflicts that disorganize the normal physiology of the gastro-intestinal tract through their expression in neurologic mechanisms. It would be logical, therefore, that the mental illness which is the basic disorder be the primary aim of therapy.

Direct experimental stimulation of the parasympathetic center in the hypothalamus produces hypermotility of the stomach, pylorospasm and hyperchlorhydria, the three most important factors present in peptic ulcer. This parasympathetic center can also be affected by cortical or psychic influences, and the effect of a chronic anxiety or depression may not be as sudden but can be as effective as electrical stimulation. The chronic stimulus of psychic conflict is independent of any actual needs of the stomach, and it goes on even when the stomach is empty, causing hypermotility, pylorospasm and hyperacidity, the stomach thus being exposed to the same conditions when it is empty that go on after it contains food. Many cases of ulcer develop after a long period of subjective symptoms of epigastric distress, and this is probably the period of physiologic dysfunction, which if continued long enough leads to its structuralized organic expression, the ulcer. During this period of physiologic unrest, the patient is often regarded as a neurotic, which he may well be. But that is the time for active treatment, and more important than medication, which may be a necessary adjunct, is psychotherapy, which also can be a powerful drug.

Alexander has expressed this in psychoanalytic language, which is, perhaps, somewhat fanciful to some of us, but it is an attempt to express a "physical disorder" in psychologic terms. "If the intense wish to receive, to be loved, to depend upon others is rejected by the adult ego and consequently cannot find gratification in normal life relations, then only the regressive pathway remains open; the wish to be loved becomes converted into the wish to be fed. The repressed longing to receive love and help mobilizes the innervations of the stomach wall which are since the beginning of extra-uterine life closely associated with the most primordial form of receiving something, namely, the process of receiving food."

Megacolon

Another gastro-intestinal disorder which is certainly more frequent in a psychotic group than it is in the general population is acquired megacolon. Most of our cases have occurred in schizophrenics and a few in general paretics. At first we believed it due to the patient's apathy and his lack of interest in having a bowel movement, with resulting fecal impaction and obstruction; but a reconsideration leads us to the belief that this is also due to disturbances in neurophysiologic mechanisms psychically conditioned. The chief physical sign is the extreme abdominal enlargement due to collections of feces and gas in the large colon. Constipation is severe and the dilatation is at times so marked that the peristaltic waves can be seen on the abdominal wall. The diaphragm may be pushed upward and cause respiratory and cardiac distress. The walls of the colon are thickened and the mucosa inflamed and ulcerated.

Many theories as to the causation of this condition have been presented. It was believed that it might be due to mechanical obstruction at the sigmoid, rectum, or anus, but most cases examined postmortem reveal no such findings. A more likely theory rests on the hypothesis that it is due to neurogenic dysfunction. The large bowel is supplied to a great extent by the sympathetic nervous system, but at the recto-sigmoidal junction the nerve supply is taken over by the parasympathetic. A spasm in this area would necessarily cause dilatation and hypertrophy above. Judd and Adson, however, believe the condition to be due to overstimulation of the sympathetic, and they report successful results in treatment by lumbar sympathectomy. It has been reported, however, that hypertrophic stenosis of the pylorus in infants occurs not infrequently in association with megacolon, cardiospasm and congenital dilatation of the bladder; and these may all be looked upon as evidence of hyperfunction of the parasympathetic. The same reasoning that was applied to indicate the psychic and somatic correlations in peptic ulcer may be applied here also, the autonomic nervous system acting as the pathway for psychic impulses. Why one patient should react to stimulation of the parasympathetic with a peptic ulcer and another with megacolon is rather difficult to explain unless we lay it to that very nebulous concept of individual predisposition or to a disturbance in the "state of steadiness" of human metabolism which Cannon calls "homeostasis."

Illustrative Case Reports

Case 1: A 30-year old white male, in 1918, had an attack of influenza followed by a "nervous breakdown" characterized by apathy and lack of energy. At this time and at irregular periods thereafter he had bouts of epigastric distress. In 1931 his marriage to a girl of 17 was annulled. He became depressed and his epigastric symptoms returned. In desperation he enlisted in the Army and was sent to Panama, which he heartily disliked. His abdominal pain became increasingly worse and he grew more irritable, tense and depressed. He then developed confusion, hallucinations and delusions, and was hospitalized in February, 1933. He felt he was under the influence of good and bad spirits, feared he was to be killed; had visual hallucinations of devils, spirits, and grotesque animals, and thought he was Jesus Christ. These ideas continued, and in May, 1933, he had a severe hematemesis. A gastro-intestinal series revealed a duodenal ulcer. He was admitted to Saint Elizabeth's Hospital in September, 1933, and radiographic examination demonstrated a pyloric stenosis, with obstruction. A transfusion was given and a posterior gastro-enterostomy performed. He made an excellent postoperative recovery with concomitant improvement in his mental condition, and he was discharged from the hospital as recovered in March, 1934. The diagnosis was psychosis (schizophrenic type) associated with somatic disease (duodenal ulcer, pyloric stenosis).

This patient suffered from epigastric symptoms for 15 years before a duodenal ulcer was demonstrated. Most of his attacks of pain were associated with periods of emotional stress. His environment finally became so intolerable that this together with the toxemia from his gastric condition produced a schizophrenic psychosis of a delirioid type. Removal from an obnoxious environment, a gastro-enterostomy, and psychotherapeutic talks helped him to recovery.

Case 2: A white man, now 55 years of age, was admitted to Saint Elizabeth's Hospital in 1914 suffering from auditory hallucinations of a persecutory nature. On the morning of November 12, 1932, he complained of having a turtle in his stomach. A few hours later he had a severe hematemesis. After an appropriate interval of treatment a gastro-intestinal x-ray study was made, and a perforating ulcer of the lesser curvature of the stomach was found. The ulcer cleared under conservative medical therapy, but the patient developed an abscess of the upper lobe of the right lung which resisted therapy until diathermy was applied to the chest and the abscess resolved. The patient continued to be hallucinated, delusional and uncoöperative, and in September, 1933, his old ulcer pain reappeared. In October, 1933, the ulcer was resected, and a reconstruction of the lesser curvature was done. The pain did not subside, and in January, 1934, a subtotal gastrectomy was performed, with amelioration of his symptoms. His mental condition, however, is unchanged. The diagnosis is dementia praecox.

Case 3: A colored man, now 50 years of age, was admitted to the hospital in January, 1929, mute and inaccessible. He developed abdominal distention several months after admission, and an x-ray of the abdomen revealed a large, dilated, hypertrophied colon filled with gas and feces and pushing the diaphragm upward so as to compress the heart and lungs. His mental and physical condition have continued unchanged. The diagnosis is dementia praecox and megacolon.

Case 4: A colored man, now 55 years of age, was admitted to the hospital in 1927. For 4 years previously he had displayed poor judgment, and he was euphoric and grandiose. On admission he presented generalized tremors, exaggerated and unequal deep tendon reflexes, irregular pupils sluggish in their reaction to light, and a typical paretic formula in the blood and spinal fluid. He was inoculated with malaria, had 7 paroxysms and received follow-up tryparsamide therapy. In spite of treatment he continued in a state of chronic deterioration. Five years after admission he developed marked abdominal distention, and a barium enema demonstrated a megacolon. The diagnosis was general paresis and megacolon.

Case 5: A white man, who at the time of his death in 1933 was 47 years of age, developed a mental illness in 1909. He was not hospitalized until 1913, when on admission he complained only of "stomach trouble." In the ensuing years he continued catatonic, resistive and filthy in his personal habits, soiling himself with feces at every opportunity. He suffered diarrhea frequently, and in 1923 it was noted that he had moderate abdominal distention. A gastro-intestinal x-ray study revealed hypermotility of the stomach and pylorospasm but no abnormality of the colon. In 1927 marked tympanites was observed, and a diagnosis of megacolon was made by radiographic examination. In the years following he had frequent attacks of abdominal distention accompanied by constipation and vomiting. A persistent hypoglycemia of about 70-80 mg. per 100 cc. of blood was present. On October 25, 1933, he suddenly developed shock and died of acute general peritonitis following a perforation of the colon. The mental diagnosis was dementia praecox, the anatomical diagnosis megacolon, perforation of the colon, acute peritonitis. The brain showed no abnormalities, both grossly and microscopically.

Case 6: A white man, now 32 years of age, was admitted to the hospital in 1928 because of repeated convulsions for many years. In the hospital the convulsions were of less frequency, but instead he had repeated attacks of excitement and destructiveness associated particularly with self-mutilation. He would fashion sharp instruments out of any piece of metal he could obtain and slash his scalp and inguinal region at every opportunity. In 1931 he began swallowing foreign bodies, safety pins, paper clips, wire, nails, screws, spoons, etc. On one occasion a safety pin became stuck in the esophagus, and this was removed. Again, a large piece of metal became lodged in the duodenum and required surgical removal. Most of the foreign bodies were passed in the stools. His mental condition is unchanged. The diagnosis is epileptic psychosis and foreign bodies in the gastro-intestinal tract.

Case 7: A 41-year old white man was admitted to the hospital in 1916, suffering from auditory hallucinations, religious delusions and a Christ-identification. He collected trash and dry feces in his pockets and would stuff his ears and nose with paper and rags. Frequently he would demonstrate his prowess by forcing coins up his nostrils and then expectorating them. Some of these things undoubtedly slipped through his pharynx and passed through his esophagus into his stomach, because a radiographic examination revealed a stomach dilated with a mass of hardware. He was operated upon, and 600 separate articles were removed, including 173 nickels, 151 pennies, 3 quarters, 26 dimes, 50 nails, and 22 buttons. He developed bronchopneumonia and empyema and died of multiple lung abscesses. The diagnosis was dementia praecox and foreign bodies in the stomach.

SUMMARY

1. As a factor in the causation of psychoses gastro-intestinal disorders play a minimal rôle.
2. Gastro-intestinal symptoms are very frequent in psychotic patients.
3. Gastro-intestinal symptoms may be psychic in origin, and psychic conflicts may be expressed through neurologic pathways (autonomic nervous system) to affect the viscera by causing continued physiologic dysfunction which results in organic changes.
4. Some cases of peptic ulcer and megacolon may be explained on this basis. Psychotherapy is an important method of treatment in these conditions, especially in peptic ulcer.
5. The frequency of foreign bodies in the gastro-intestinal tract of psychotic patients is stressed, and if these do not cause marked symptoms or obstruction it is best not to employ surgical intervention.

BIBLIOGRAPHY

ALEXANDER, F., ET AL.: Symposium on Psychologic Factors in Gastro-intestinal Disturbances. Psychoanalyt. Quart., 1934, **3**, 501.

CANNON, W. B.: Bodily Changes in Pain, Hunger, Fear, and Rage. New York, D. Appleton & Co., 1929.

COTTON, H. A.: The Etiology and Treatment of the So-called Functional Psychosis; Summary of Results Based Upon the Experience of Four Years. Am. J. Psychiat., 1922–1923, **2**, 157.

CUSHING, H.: Peptic Ulcers and the Interbrain. Surg., Gynec. and Obst., 1932, **55**, 1.

HIPPOCRATES, QUOTED BY CUMSTON, C. G.: An Historical Note on the Relationship of Digestive Disturbances and Psychoses. Boston M. & S. J., 1920, **183**, 632.

JUDD, E. S., AND ADSON, A. W.: Lumbar Sympathetic Ganglionectomy and Ramisectomy for Congenital Idiopathic Dilatation of the Colon. Ann. Surg., 1928, **88**, 479.

LEWIS, N. D. C.: A Case of Congenital Megacolon Associated with Mental Disorder and Terminal Cerebellar Hemorrhage. J. Nerv. & Ment. Dis., 1922, **56**, 193.

WATTS, J. W.: The Influence of the Cerebral Cortex on Gastro-intestinal Movements. J. A. M. A., 1935, **104**, 355.

WATTS, J. W., AND FULTON, J. F.: Intussusception: The Relation of the Cerebral Cortex to Intestinal Motility in the Monkey. New England J. Med., 1934, **210**, 883.

ADRENAL-REST TUMOR. REPORT OF AN UNUSUAL CASE

W. CALHOUN STIRLING, M.D., F.A.C.S.

Associate Professor of Urology, Georgetown University School of Medicine

As Ewing points out, tumors of misplaced adrenal tissue outside the kidney are rare. Many of the so-called "hypernephromata" were thought to be misplaced adrenal rests by Grawitz and were so classified until Ewing pointed out their renal origin. The large proportion of the reported hypernephromata are renal adenocarcinomas.

Embryologically, the adrenal gland is in close proximity to the kidney after the second month, and inclusions in this organ may occur, although Ewing found only 17 cases in the literature. Multiple adrenal-rest tumors outside of the kidney are distinctly rare, although such a diagnosis is not uncommonly made, usually erroneously.

These adrenal-rest tumors are usually situated in the upper pole of the kidney, but they occur in any part of the organ. They are sharply encapsulated, homogeneous and of a yellowish, fatty-like consistency and very prone to cyst formation. Segmentation is less marked, and the perirenal tissue and lymph nodes are more frequently involved in renal carcinoma. These kidney tumors fungate through the blood vessels with secondary tumors arising by venous extensions through the veins.

The tumor I am reporting exhibited many characteristics of a misplaced adrenal rest, as well as papillary adenocarcinoma of the kidney. Ewing states that "Sections of the tumor show a complex and varied structure. Some portions are composed of diffuse sheaths of large polyhedral, epithelioid and spindle shaped cells. This suggests an adrenal-rest tumor. Other sections show the characteristic papillary adenocarcinoma with well marked lumina, and this is therefore an unusual type of adenocarcinoma of the kidney. I have not seen a similar case (Fig. 1)."

REPORT OF CASE

Mrs. E. C. W., aged 78 years, white, was admitted to the Homeopathic Hospital on March 6, 1934, after consultation with Dr. J. B. G. Custis. Her chief complaint was anorexia, lassitude and dysuria and hematuria. In May, 1932, she had begun to lose her appetite and felt very weak. On February 14, 1934, she first noticed a painless hematuria which rapidly cleared up. However, on the twenty-third of February, she had a chill with pain in the back and more bleeding. Ten days later she was admitted to the hospital after having passed a large quantity of blood and clots. She has had several of the usual childhood diseases, diphtheria, etc. The family history was of no relative importance. Physical examination was essentially negative, except for marked tenderness over the bladder area. A catheterized specimen of urine was quite bloody, of 1.014 specific gravity, acid reaction and negative for sugar. There were numerous pus cells and a large number of red blood cells. The blood hemoglobin was 65 per cent, and the erythrocytes numbered 3,980,000. The blood urea was 22 mgm. The clotting time was normal. A flat roentgenogram of the urinary tract showed no abnormality. Due to the marked hematuria, a cystoscopic examination was made on March 9, and the bladder was found full of clots, only a portion of which could be evacuated, being well organized. The bleeding was found to be coming from the left kidney. An intravenous indigo carmine test showed normal time of elimination and concentration by the right kidney. However, on the left, the dye elimination was delayed to 8 minutes with poor concentration. A pyelogram of the left kidney showed the typical distortion, retraction and elongation of the renal calices with downward displacement of the kidney (Fig. 2). The right pelvic function was distorted. A culture from the right kidney showed no pus and no acid-fast bacilli. The left showed many pus cells and erythrocytes, with no acid-fast organisms. On March 14, under ether anesthesia, the left kidney was delivered through a lumbar incision. On exposure of the kidney, the upper pole was found to contain a large sharply circumscribed mass, not adherent to the surrounding structures (Fig. 3). The kidney was delivered and removed without difficulty. When this was done, a series of three cystic masses were found intimately associated with the vena cava and aorta and extending across the midline to the other kidney. They were sharply circumscribed, easily separated from the surrounding tissues and apparently had a very poor blood supply, since no bleeding

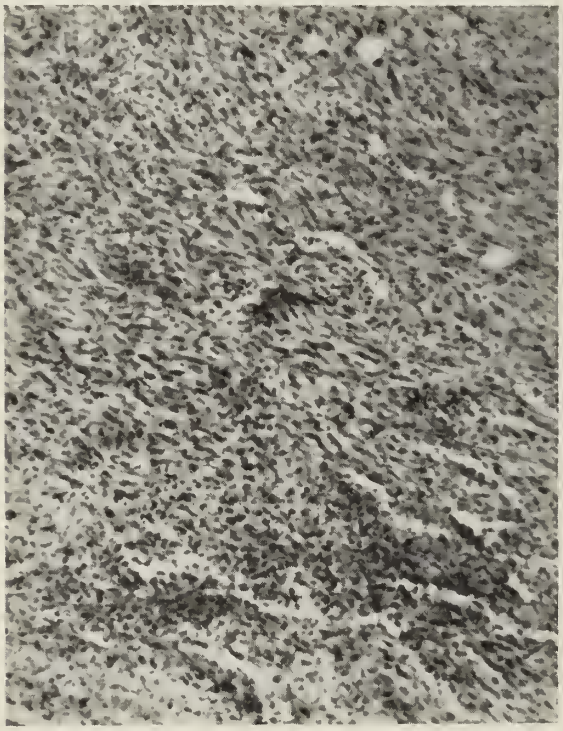


FIG. 1. HYPERNEPHROMA (ADRENAL-REST TUMOR) SHOWING SHEATHS OF LARGE POLYHEDRAL CELLS WITH VESICULAR NUCLEI AND CLEARCYTOPLASM

In some areas the tumor cells become spindle shaped

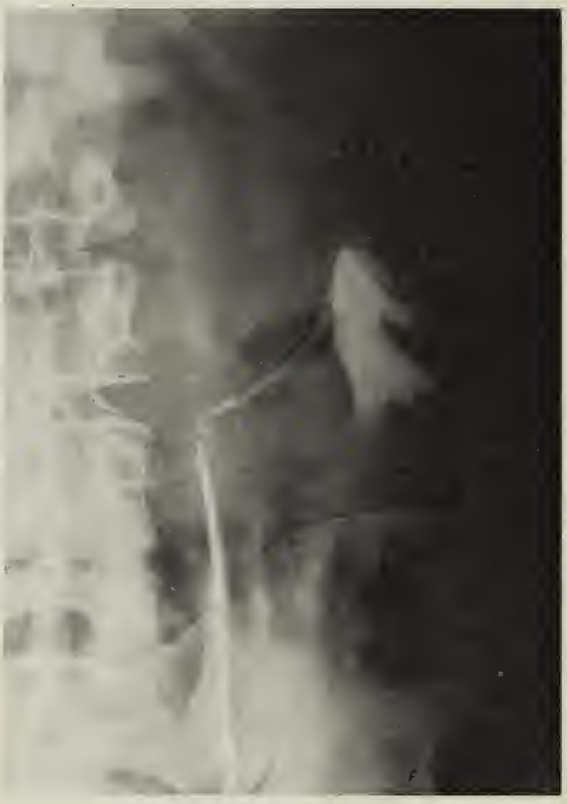


FIG. 2. RETROGRADE PYELO-URETEROGRAM SHOWING THE CHARACTERISTIC RETRACTION AND ELONGATION OF THE CALICES, ABNORMAL INSERTION OF URETER, MODERATE PYELECTASIS, PTOSIS OF KIDNEY AND DISTORTION OF PELVIS WHICH ARE PATHOGNOMONIC OF RENAL NEOPLASM

was encountered when they were shelled out. The three masses together were much larger than the kidney, which measured 14.2 x 5.4 x 4.3 cm., the tumors measuring 5.8, 7.9 and 9.0 cm. respectively. There were several other small glands situated in the perirenal tissues that felt suspicious and were unquestionably metastatic. Due to the presence of a large number of these glands, their removal was out of the question. The incision was closed in the usual manner with drainage and the patient left the hospital on March 26, apparently cured. She has been well since that time and able to resume her household duties.

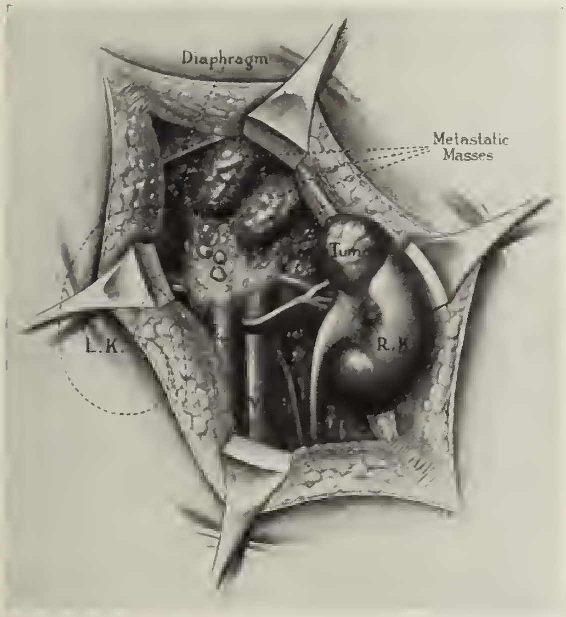


Fig. 3. The Relative Size, Location and Intimate Association with Adjacent Structures of the Masses Are Shown in the Drawing

The lumbar incision has been extended to show the relation to the great vessels.

DISCUSSION

A number of cases of retroperitoneal sarcoma in which the kidney was involved have been reported in the literature. Quinby reported a case of adrenal neoplasm with marked dysfunction of the endocrine system. Other writers have described tumors which by their mere physical presence produced pressure upon surrounding structures causing reflex symptoms. This reflex phenomenon is easily understood. In this case there was undoubtedly involvement of the entire set of lymphatics draining the kidney.

This case emphasizes the necessity for more frequent collaboration between the family physician and the urological surgeon. The presence of blood in the urine without exception should always be investigated and the cause determined. The practice of assuring a patient that hematuria is of no consequence is in many cases forfeiting whatever chance the patient has by the early removal of a tumor. Painless and sudden hematuria is often indicative of a new growth in the urinary tract, and this possibility should always be eliminated by a careful urological study before assuring the patient that the bleeding is of no consequence.

Renal neoplasms are largely malignant, but their growth may be slow and metastases late in forming. The only possibility of a cure is in the early extirpation of the mass, thereby obviating the possibility of spread to adjacent structures such as happened in the case herein reported.

To the classical triad of symptoms of renal tumors—intermittent hematuria, palpable mass, and pain, should be added the characteristic pyelographic deformity and lowered function which makes the diagnosis very accurate.

BIBLIOGRAPHY

Ewing, J.: Neoplastic Diseases. Philadelphia, W. B. Saunders Co., 1928.

Ewing, J.: Personal Communication.

Quinby, W. C.: Some Dysfunctions Caused by Neoplasm, Especially of the Adrenal Gland. J. Urol., 1934, **32**, 321.

Endocrine Interrelations During Pregnancy.—The formation of particularly large corpora lutea during gestation, and the fact that ovariectomy usually interferes with the maintenance of pregnancy, make it very likely that ovarian hormones are of great importance for the developing embryo. It has been shown, however, that in the human and several other species pregnancy may continue even though the ovaries be removed at a relatively early stage of embryonic development. Furthermore, the corpus luteum of gestation involutes in many species long before delivery, and one may therefore be led to believe that the corpus luteum hormone is only necessary for the progestational proliferation of the uterine mucosa preparatory to the nidation of the fertilized ovum. This theory, however, would not explain why in other animals—for instance in the rat—pregnancy is interrupted by ovariectomy even if the ovaries be removed during the last part of gestation. In this communication, we wish to report a series of experiments which may throw some light on the rôle of the corpus luteum hormone, and on the remarkable species differences in the hormonal regulation of pregnancy. . . . .

Summary and Conclusions.—1. In the rat ovariectomy during gestation was found not to interfere with the life of the placenta. It terminates pregnancy only because it causes the death of the foetus; and the dead foetus, if it is large enough at the time of the intervention, will cause the abortion of the whole gestation sac, simply acting as a foreign body. The probable cause of the death of the foetus is the partial involution of the uterus which considerably increases the pressure in the gestation sac.

2. The placenta of the rat must produce corpus luteum hormone, since the uterus was found to show distinct progestational changes, and the mammary gland to be maintained in a well-developed condition for as long as six days after the simultaneous removal of the ovaries and all the embryos.

3. The placenta survived in apparent functional integrity after removal of the ovaries and the foetuses, hence is independent of ovarian hormones even in the rat, a species in which ovariectomy invariably terminates gestation. There is probably no species difference in this respect, and whether pregnancy is or is not interrupted is determined merely by incidental facts—namely, by the resistance of the embryo to such pressures as will be occasioned by ovariectomy in the uterus, and by the degree to which the production of ovarian hormones has been transferred into the placenta.

4. Since the life-span of the placenta was not markedly influenced by the removal of the embryos, the length of the gestation period must be determined by factors inherent in the placenta.—*Extract from article by* H. Selye, J. B. Collip *and* D. L. Thomson, *Montreal, Endocrinology, March–April 1935, pp. 151.*

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA
Editorial Office, 1718 M Street

EDITORIAL STAFF

COURSEN B. CONKLIN, A.M., M.D., *Managing Editor*
WALLACE M. YATER, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

MEDICAL-DENTAL SERVICE BUREAU, INC.

SOME OBSERVATIONS ON THE MARCH, 1935, ACTIVITIES

The operation of your Medical-Dental Service Bureau for its first month of existence has revealed possibilities for service to the community and to the profession that could only be brought to light through the putting of the plan in effect and getting away from mere speculation. The broad front consisting of components of dentists, physicians, hospitals, which originally was visualized, is spreading and a mutual understanding seems to be awakening which bespeaks much in alleviating the distress of that section of the public which found difficulty in meeting costs for service. As foretold, bills are being lumped in certain instances for laboratory, physician and hospital. The fine response from the local trade exceeds predictions. We shall now particularize giving facts in brief paragraphs:

Physicians: One hundred and eighty-nine (189) members of the Medical Society of the District of Columbia have returned to the Bureau, postal, informing of specialty, requesting forms, etc. This means *487* have not made this gesture of interest in the Bureau during the first month of operation.

Hospitals now signed to coöperate allowing the Bureau 10 per cent of collections on monies turned over to them through the Bureau are as follows: Children's; Columbia; Episcopal Eye, Ear and Throat; Emergency; Garfield Memorial; George Washington; National Homeopathic; Providence; and Sibley.

The following local firms: The Hecht Company, Frank H. Jelleff, Inc., Lansburgh & Brothers, Palais Royal, Woodward & Lothrop, have distributed payroll inserts to their employees; in addition, several have included an article in their em-

MEDICAL-DENTAL SERVICE BUREAU
8th and Eye Streets, N. W., Washington
This building houses in addition the Central Admitting Bureau and the Permit Bureau of the Board of Public Welfare

ployees' bulletin regarding the advantages of the Medical-Dental Service Bureau. A typical payroll insert is as follows:

> IMPORTANT NOTICE TO OUR EMPLOYEES
>
> Are you neglecting your health because of an old medical, dental or hospital bill or because you feel that the cost of the treatment you need will be more than you can afford to pay?
>
> Members of the Medical and Dental Societies, through the Medical-Dental Service Bureau, will help you solve this problem.
>
> You may now request your physician, dentist or hospital to let you use their Medical-Dental Service Bureau. This Bureau is a part of the Medical and Dental professions and maintains a qualified staff with whom you may work out cost adjustments for all your medical care.
>
> Through the Bureau, you may arrange small regular payments for your Medical, Dental and Hospital bills.
>
> THERE IS NO CHARGE FOR THIS SERVICE
>
> This is the Medical and Dental professions' new plan to help you out in these times of money pressure.
>
> Ask your doctor or hospital to let you use their Bureau to arrange for the payment of their bills—new or old.
>
> Call Mr. Rawlings at the Medical-Dental Service Bureau, Metropolitan 3900 (8th and Eye Streets, N.W.) or consult your Director of Personnel for any information pertaining to this service.

About 50 persons applied directly to the Bureau during March, the first month. A large percentage were referred to private physicians or dentists selected from lists of memberships in the Bureau's Office.

Dentists* in a small group are now participants in a plan whereby the Emergency Relief Forces will remunerate for emergency dental care.

It can be safely said that the first month's operation of the Bureau, located strategically in the same building with the Central Admitting Bureau and the medical offices of the Board of Public Welfare, developed potentialities of merit.

It is evident (1) that 487 members of the Medical Society of the District of Columbia have not embraced as yet an opportunity to be participants in what promises much to both the public and the profession; (2) that the commendable coöperation of hospitals and of firms is proportionately greater and gives evidence of spreading until the majority are included.

Some physicians and dentists, even at the end of the first month of operation, are getting checks from the Bureau on accounts that would have looked, some weeks ago, hopeless because no agency was at hand to lend the right kind of assistance. Are you participating?

This Bureau is operated through a Board of Directors, as follows:

Drs. Wallace M. Yater, president; G. Albert Smith, vice president; Coursen B. Conklin, secretary-treasurer; B. Edwin Erikson, William T. Grady, Thomas A. Groover, Stephen C. Hopkins, William H. Hough, Oscar B. Hunter, Phillip T. Johnson, Henry C. Macatee, W. M. Simkins, E. C. Wiggins and Prentiss Willson.

ANNUAL SCIENTIFIC ASSEMBLY

May 1 and 2

Full particulars of the program reached you with the March Annals. A formal program of events in separate folder is in the mails. The scientific meetings with such subjects as: "The Management of the Syphilitic," "Lymphogranuloma Inguinale with Special Reference to Stricture of the Rectum," "Abdominal Symptoms in Diabetes Mellitus," "Pyelitis of Pregnancy," "Colostomy Preliminary to Uretero-Enteric Anastomosis," "Multiple Acute Osteomyelitis with Pyemia," "Hepatico-Gastrostomy," "Hemangioma of the Ovary in a Baby," "Evaluation of Anti-meningococci Serum," "The Treatment of Chronic Sinus Disease with Roentgen Rays;" the scientific exhibits depicting Cardiac Pathology, Gallbladder Facts and Aphorisms, the Incidence of Syphilis in Washington, Hemochromatosis, Pathology of Addison's Disease, Amyloid Disease; our out-of-town speakers, Drs. J. Shelton Horsley of Richmond and Soma Weiss of Boston; the vast array of technical exhibits sponsored by Beuchler's, Chestnut Farms-Chevy Chase Dairy, Davies, Rose & Company, Ltd., The Doak Company, Edmonds, Gerber Products Company, The Gibson Company, H. J. Heinz Company, Mead Johnson & Company, Kloman Instrument Company, Kloman X-Ray Corporation, Mallinckrodt Chemical Works, Mellin's Food Company, Merck & Company, Inc., W. B. Saunders Company, E. R. Squibb & Sons, assure a rare opportunity right here in your home city, under the auspices of your Society to refresh your mind on topics of modern medicine. Two whole days of educational movies will be shown in

* The medical profession also should be allowed to serve and be remunerated as in the States.

our own theater. Then, too, the luncheon*, noon, May 1, at the Mayflower Hotel, with The Reverend Edmund A. Walsh, S. J., speaker, the banquet, Thursday evening, at the Mayflower—tickets $2.50, with an entertainment exclusively by professionals, are added inducements for attendance and for the spreading of knowledge of these opportunities on Wednesday, May 1, and Thursday, May 2, to your professional friends in neighboring counties.

The Woman's Auxiliary is arranging a Fashion Show at the Mayflower for the visiting ladies, also teas and other social events. Members of the profession from the states may bring their ladies with an assurance that they will be ably and amply entertained.

Note all these events, both scientific and social. Do not fail to arrange your appointments so as to have 2 full days of profitable enjoyment right here in Washington. *Register* early on May Day, at your Society's Office. You can not afford to stay away.

SOCIETIES WITH LIMITED MEMBERSHIP

Clinical Club of Washington

April 2, 1935: Cosmos Club.

1. "The Ideals of the American Federation of Labor." Mr. Frank Morrison, Secretary, American Federation of Labor, guest speaker.

Mr. Morrison allowed a series of questions and answers to follow his discourse which proved most interesting and instructive.

2. "Sigmoiditis with Numerous Complications." John F. Brennan, M.D. Discussion by invitation, from Dr. James A. Cahill, Jr., who was the consulting surgeon.

This patient made a remarkable recovery after subhepatic abscess, pneumonia and peritonitis from a perforated diverticulum.

3. "Subacute Bacterial Endocarditis with Recovery." Tomas Cajigas, M.D.

Resort was made to transfusion from donors who had been immunized by vaccine from the streptococci viridans recovered from the patient's blood, the agglutination titre reaching 1–600.

Louis Mackall Medical Society

April 8, 1935: Ambassador Hotel.

"The Ocular Manifestations of Systemic Disease Common to Childhood." Frank D. Costenbader, M.D.

The annual election of officers resulted as follows:

Howard H. Strine, *President*
Philip O. Pelland, *Vice President*
R. Lomax Wells, *Secretary-Treasurer*

ACTIVITIES OF SECTIONS

Section on Internal Medicine

The annual election of officers resulted as follows:

F. A. J. Geier, *Chairman*
A. J. B. Connolly, *Vice Chairman*
R. Lomax Wells, *Secretary-Treasurer*

Section on Neurology and Psychiatry

The following were nominated for office in the Section:

Walter Freeman, *Chairman*
H. D. Shapiro, *Vice Chairman*
Antoine Schneider, *Secretary-Treasurer*
Roger S. Cohen, Abram Simon, Alice H. Kiessling, *Executive Committee*

Election will be held in May.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

The fifth lecture of the Smith-Reed-Russell series for this year will be given by Colonel P. M. Ashburn, on Thursday, April 25, at 11 A.M., in Hall A. Subject:

"Medical History of the Conquest of America in the Sixteenth and Seventeenth Centuries."

TUMOR REGISTRY COMMITTEE

Your committee on tumor registry believes that every member of the Society should be informed on certain accepted and fundamental principles in the diagnosis and treatment of tumors. It is the Committee's plan to assemble data and material and to present it in graphic form, readily available. The Committee's desire is to render service to all the members of the Society.

---

* Complimentary tickets to registrants, Monday A.M., at 1718 M. Street.

It is obviously impractical to store large numbers of gross specimens in the Medical Society Building. It is also obvious that the success of the work of the committee depends upon the coöperation of the members in furnishing material. You are, therefore, urged to communicate with the chairman whenever you have a specimen which you consider to be appropriate to our needs. Arrangements will be made for preparation of the necessary records and photographs. Microscopic sections will be of utmost importance in all cases.

It will be the policy of the committee to post photographs on the special bulletin board in the lobby of the Medical Society Building from time to time. No names or marks of identification of patients, presenting physician or hospital will appear. However, complete records will be incorporated in the permanent files for those who desire to pursue the study of reports in detail.

Your committee believes contributions to the files of the tumor registry will be amply repaid by the help which you will receive in the study of your own patients and which you will render to your fellow-members.

When you see or think of one of your interesting, not necessarily rare, tumors, think of this committee's activities.

Janvier W. Lindsay, *chairman*

Walter Freeman
Matthew White Perry
James A. Cahill, Jr.
Edmund Horgan
Claude Moore
V. J. Dardinski
F. J. Eichenlaub
H. H. Leffler

THE "RADIOCLAST"

The long shadow cast by the exploitations of the late Dr. Albert Abrams seems to be still upon us in the advertising locally of a device called the "Radioclast."

A letter purporting to emanate from the office of "Dr. Floyd James Carter, Chiropractor, 6400 Brookville Road, Chevy Chase, Maryland," has reached the office of the Society. The letter reads as follows:

"My dear Madam:

This message is the 'key' that may open to you a relative or a friend, the 'Door to Health.'

Since the discovery of Radio many scientists have predicted that a means would be found whereby the Radio could be used in analyzing and treating the ills of mankind. Today the oft-predicted time has arrived when we can 'tune in' on the symphony of the body and determine the harmony or discord of its parts.

This is accomplished by an instrument known as the 'Radioclast' which actually 'tunes in' on the vibrations of your body and registers instantly all abnormalities. In fact it is so accurate that you need give no information regarding your physical problems; this delicate instrument will reveal the condition of every organ and tissue and indicate the methods by which your ills may be corrected.

The detection of disease no longer depends on the outmoded methods of the past. 'Radioclast Analysis' now provides us with a scientific and positive means of detecting, measuring and locating abnormal conditions.

For this analysis you need not disrobe or undergo any of the usual procedures of a physical examination. One merely sits comfortably while the Radioclast tunes in your vibrations. No sensation of any kind is produced.

I have added this wonderful invention to my equipment and for one week beginning March 11th, the fee for a complete analysis will be but five dollars. After this the fee will be increased for the same service Associated with me during this period will be Dr. R. B. MacIntyre who is an expert in the field of Radionics.

Since only a limited number can avail themselves of this unusual opportunity, it is important that you arrange your appointment at once. The Radioclast points the way to health.

Sincerely yours,
(Signed) F. J. Carter"

The Bureau of Investigation of the American Medical Association writes as follows:

"According to our records, the full name of the 'Radioclast' is 'Auto-Electronic Radioclast' and the thing is put out by the Electronic Instrument Company of Tiffin, Ohio, which makes the following claims in the advertising:

'*The Radioclast Diagnosis:* The modern Radioclast represents fourteen years of progress and development. In diagnosis it has no equal. We have many practitioners in the field who obtain a complete clinical picture of the patient's physical condition, without asking a single question. This is most impressive to the patient, and has proven itself to be the greatest selling agent ever given to the profession. For building and maintaining a practice the Radioclast stands preëminent!'

'*The Radioclast Treatments:* The treatments are based on the principle that Like Cures Like. The instrument differs from practically all others in that it amplifies the disease vibrations directly from the patient's body. As the constructive vibrations are patterned directly from the disease itself, they are exactly alike, and thus contain the elements of the perfect remedy. Like the healing forces of Nature these vibrations are silent, dynamic and imperceptible. They do not rely on chemical or thermal action, but strike at the atomic disturbances within the cells.'

In addition to these claims are the further claims that the device will detect where there is a 'nerve pressure.' It also has built into it a 'food selector' with which, according to the advertising, 'it is now possible to work out a specific diet for each individual patient.' It would be painting the lily for us to attempt to add anything to these quotations.

The Radioclast is another one of the innumerable imitations of the original device in this field brought out by the cleverest charlatan of the century, the late Dr. Albert Abrams of San Francisco. It was Abrams' thesis that each disease had its own definite vibration number, and he claimed to have devised a machine that would mechanically indicate what that vibration number might be. He went further. He had another machine (the 'Oscilloclast') that he claimed would produce the same kind of vibrations at any rate that was desired. He claimed, further, that after determining that a patient had a disease of a certain vibration rate, by applying the same vibration rate to that patient he knocked out the disease.

It reduced the enormously complex problems of diagnosis and treatment of human ailments to the simplicity of a nickel-in-a-slot gum-vending machine. But it was much more expensive!

In the Radioclast exploitation, they have gone even beyond the Abrams concepts. They claim to have built into the device something that will tell you just what food to select for the patient."

RADIO BROADCASTS*

April and May

April 2: "The Municipal Hospital." Edgar A. Bocock, M.D., Superintendent, Gallinger Municipal Hospital.

April 9: "Infantile Paralysis." Harry A. Ong, M.D.

April 16: "Medical Security." Mr. Ross Garrett, Coördinator, Medical-Dental Service Bureau, Inc.

April 23: "Prevention of Disease in the Young." Joseph S. Wall, M.D.

April 30: "Immunize Now—Stamp Out Diphtheria." Hugh J. Davis, M.D., Director, Child Hygiene Service, District of Columbia Health Department.

May 7: "Finding Cases of Tuberculosis is the Essence of Tuberculosis Control." J. Winthrop Peabody, M.D.

May 14: "Headaches." William Earl Clark, M.D.

May 21: "The Skin." Lee McCarthy, M.D.

May 28: "Backache." Guy W. Leadbetter, M.D.

* Arranged by the Committee on Public Information, Dr. Herbert P. Ramsey, chairman; Dr. R. Lyman Sexton, subchairman.

AMERICAN MEDICAL ASSOCIATION

Atlantic City, June 10–14

The District of Columbia Fellows are expected to attend in even larger numbers than previously. This year a joint meeting will be held with the Canadian profession. The attractions of a resort city will be at hand after a day spent attending assemblies, viewing scientific exhibits, and refreshing ourselves of the details of every advance in medicine. A number of our members will participate in the program. Write now to Dr. William Edgar Darnall, chairman, Committee on Hotels, 16 Central Pier, Atlantic City, N. J., for hotel accommodations.

George Kasper Baier, M.D., a member of the Medical Society of the District of Columbia since 1902, died, after a long illness, April 22, 1935. He was born January 24, 1876, in Washington. His degree in medicine was received from Columbian (now George Washington) University in 1898. Dr. Baier enjoyed a large practice, retiring in recent months since the onset of his illness. A committee will be appointed to bring tribute to his memory.

Colonel Fielding H. Garrison, M.C., U. S. A., retired, an honorary member of the Medical Society of the District of Columbia, died Thursday, April 18, in Baltimore, Maryland, where he had been custodian of The Welch Memorial Library. Colonel Garrison was born in Washington, November 5, 1870. He received the degrees of M.D., Litt.D., from Georgetown University in 1893 and 1917. In 1890, Johns Hopkins University conferred the degree of Bachelor of Arts. He became a member of the Medical Society of the District of Columbia by invitation in 1909. In November, 1911, he was made an active member. His honorary membership dated from November 28, 1923. His most notable work was accomplished in the field of medical history. His general helpful spirit while a librarian at the Surgeon General's Library, not only endeared him to the local profession but to physicians seeking assistance from afar. His contribution to the History of the Medical Department of the World War, and his book "An Introduction to the History of Medicine," which has gone through many editions, are outstanding. Surviving him are his widow, Mrs. Clara A. Garrison, and three daughters, Mrs. Shirley Heare, Miss Margaret Garrison and Miss Patricia Garrison.

Samuel M. Sacks, M.D., who died February 14, 1935, was born in Riga, Russia, January 5, 1880. He was in general practice for 27 years in the city of Washington. Previous to his matriculation in medical school he was engaged in pharmacy. He became a member of the Medical Society of the District of Columbia in 1917. A Necrology Committee, consisting of Drs. William A. Mess, chairman; E. T. Stephenson and J. Rozier Biggs, will draw up suitable resolutions.

MEDICAL ANNALS

of the

DISTRICT OF COLUMBIA

VOLUME IV MAY, 1935 NUMBER 5

THE CAUSE OF DEATH*

WALLACE M. YATER, M.D., F.A.C.P.

Professor of Medicine, Georgetown University School of Medicine

AND

HUGH H. HUSSEY, M.D.

Intern, Georgetown University Hospital

It is not difficult usually to determine whether an individual is dead. But to determine why he died is often difficult. Death really begins in the embryo, since each day of life increases the chances of the cessation of life. Death, as described by Lepeschkin, is "an irreversible loss by the organism of the property of being alive, that is, of showing growth, development, metabolism, movement and reproduction, which, in the total, form life." It is the "last link in a long chain of changes which are carried out in a living organism." "The death moment of multicellular organisms is difficult to define." "Theoretically, death is the end stage of necrobiosis, the death of all cells, tissues and organs. Practically, death is a condition in which an organism can not be aroused."

The death certificate is an important document. Crofton has listed the points of importance of the death certificate in part as follows:

1. As evidence for disability compensation: Pensions or life insurance may depend on proper evidence of the facts and cause of death.
2. As a requirement in courts and elsewhere to establish the necessary facts.
3. As a document to establish title and right of inheritance.
4. As a help to public health agencies in the prevention of epidemics.
5. As a means to ascertain the standard of health in each community.
6. As a guide to homeseekers and immigrants in the selection of safe and healthful homes.

The inaccuracy of death certificates in general detracts greatly from their importance as scientific documents. The reasons for inaccuracy are as follows:

1. Our inability to make correct clinical diagnoses.
2. The low percentage of postmortem examinations.
3. The varying abilities of those who do postmortem examinations.

Our inability to make correct diagnoses is illustrated by our study of the necropsies performed during the past year at Georgetown University Hospital and on the Georgetown Division of the Gallinger Municipal Hospital. At the former hospital the clinical diagnosis of the cause of death was proved to be correct in 63.15 per cent of the cases studied postmortem; at the latter, in 53.29 per cent. The average of correct clinical diagnoses in the total of 220 cases at the two institutions was 55 per cent. This being the percentage in two institutions in which all modern methods of diagnosis are available, it is probable that the percentage of correct clinical diagnoses in general practice is considerably smaller. Osler believed that 40 per cent might represent the figure for correct clinical diagnoses in general.

The percentage of postmortem examinations performed varies greatly in different countries and in different communities. According to Davydovsky autopsies are performed in 80 to 100 per cent of patients dying in the University and larger city hospitals in Switzerland, Austria, Germany and Russia, while the percentage is only about 10 to 20 or even less in similar institutions in America and Japan. But even in different cities in the same country there are great differences in the percentages. In Russia, for example, in Moscow 80 to 100 per cent autopsies are performed, but in the provinces only 5 to 10 per cent are done. In Germany the total percentage of postmortems performed in 1920 and 1921, according to Lubarsch, was not more than 5 per cent. The calculations of Karsner show that in America on the whole only 0.7 per cent of persons are examined postmortem. It is clear that with these conditions there is at present little hope for a rapid and widespread reform in mortality statistics. In this country, except in cases in which there is a question of foul play and in certain other cases, there is no law requiring necropsies to be performed. The American College of Surgeons has stimulated the profession to perform necropsies by requiring hospitals to have a percentage of 15 per cent or more before they are accepted as accredited institutions. The problem is one of educating both the profession and the public to appreciate the importance of necropsies—a slow process, since legislation on this point is very remote. It is both astounding and discouraging to note how often physicians display reticence or diffidence or even object to attempting to obtain permission for necropsies, despite the fact that all of them have been educated to know how important these examinations are in the acquisition of medical knowledge. Sometimes they seem to consider it an indignity to suggest the autopsy to relatives, as if it might demean them in their eyes. At other times their self-confidence leads them to say, "I know what was wrong. What is the use?" But most often it is probably because they fear they may be shown to be wrong. They would rather "bury their mistakes" than learn from them.

---

* Read before the Society, February 27, 1935.

Those who perform necropsies differ considerably in their training and ability to do this work. It requires thoroughness, knowledge and judgment to arrive at correct conclusions in a considerable percentage of cases. Consequently only those should be delegated to this work who are qualified to do it. For this reason also the value of statistics from different institutions varies widely. One must know who has made the examination before he evaluates the protocol and opinion given. Careful descriptions and seasoned deductions are essential.

There exists great confusion as to what should be written on the death certificate as the primary or principal cause of death and what as the contributory. There is good reason for this confusion. For instance, subacute bacterial endocarditis usually occurs only on a valve previously damaged by rheumatic valvulitis. Often the patient is known to have had the preëxisting valvulitis. Is the bacterial endocarditis the primary cause of death? The answer by most would promptly be "yes." And yet the bacterial endocarditis would never have existed had it not been for the already existing disease of the valve. Or again, an individual with cancer, which has lowered his resistance to infection, develops a rapidly spreading tuberculosis. Is the primary cause of death the cancer or the tuberculous infection? The answer is probably the latter, and yet the cancer came first and undoubtedly was responsible for the occurrence of the tuberculous disease. Still again, a patient in the advanced stage of cirrhosis of the liver might develop bronchopneumonia and die during that illness. In this case the majority would probably record cirrhosis of the liver as the primary cause and bronchopneumonia as the contributory cause. In the cancer patient previously described a complication would be given as the primary cause of death, whereas in the cirrhosis patient the complication would be given as the contributory cause. It is unfortunate that our death certificates call for such a distinction. As long as they do, it will remain a matter of careful judgment on the part of the physician to decide which of two or more diseases patients frequently have at the time of death, is the most important in the production of death. No rule can be made which will apply to all or even a majority of the cases, except that the physician should be as lucid as possible in order to convey a concise but accurate picture of the terminal event of the life of his patient.

There is yet another problem in the filling out of death certificates. There are plenty of cases, especially of acute infectious diseases, in which there is no question as to the primary cause of death. The difficulty is to decide upon a contributory cause. In such cases the contributory cause given is frequently the physician's opinion of the fundamental mode of death, of the terminal phase of the disease or of the immediate cause of death. To illustrate, in a simple case of lobar pneumonia one physician might list circulatory failure as the contributory cause of death, another respiratory failure or asphyxia and yet another toxemia. All might be correct to a certain extent in the same case, but the fundamental mode of death is often not a simple one. In a case of lobar pneumonia it is rare that the failure of any one organ or system can be considered the main mode of death. The toxemia causes depression of the vasomotor center, dilatation of arterioles and drop in the blood pressure; this peripheral circulatory failure, plus the reduction of lung volume by the local disease causes asphyxia and anoxemia; the fever, the increased rate of metabolism and the lowered amount of fluid intake cause dehydration; all of these things and probably others cause progressive lessening of functions of all of the organs, and so the patient dies, not of one thing, but of many things.

There are in most disease conditions certain common modes of death, and it is often one of these with which life ends and which may be named the contributory cause if some other specific disease is not present. For instance, as pointed out by Warren from a study of the immediate cause of death in 500 cases of carcinoma, cachexia was the most frequent single cause, although exceeded by the total of the various pulmonary disorders. Cachexia, which may be briefly described as a general deterioration of the body, was associated most frequently with cancer of the breast, stomach and bowel. By far the commonest cause of death in carcinoma of the cervix uteri was renal insufficiency. Sepsis was an important factor in many cases, and we may add that this is true also of other diseases, as we shall show in our own study.

The actual cause of death in general peritonitis resulting from any cause is undoubtedly the severe toxemia. The peritoneum presents such a tremendous absorption surface that the bacterial toxins are absorbed in large amounts. Other factors probably play a contributory rôle, but it is mainly the general intoxication which is responsible for death.

Old persons rarely die as the result of any one outstanding disease but life usually ends with some minor condition which is merely the final episode in the course of general decrepitude.

Surgeons are prone to attribute death after operation to heart failure. We believe that what they are calling heart failure is the peripheral vascular failure of shock or toxemia. Neuhof and Aufses studied the causes of death in 800 consecutive autopsies of patients who died after operation. They excluded those who died within 48 hours. They attributed death to heart disease and arteriosclerosis, which they combined, in only 34 of the cases. Death was apparently due to the original disease in 42 per cent, to suppuration alone in 25.5 per cent, to pneumonia alone in 8 per cent. Embolism and thrombosis were responsible in 25 cases (3 per cent). Other causes were relatively infrequent, and in some instances two contributory factors existed.

Sudden death in a supposedly healthy, or at least not seriously ill individual, is often difficult to certify as to the cause. Sheldon, in a review of the causes of sudden death in the Sydney (Australia) Morgue since 1898, points out that "there is a trinity of organs, circulatory, respiratory and nervous, each of which is indispensable, and any one of which, sufficiently injured, brings about somatic death." He lists the causes as follows:

Heart disease in 143 cases.
Arteriosclerosis in 77 cases.
Cerebral hemorrhage in 56 cases.
Septicemia in 133 cases.

Status lymphaticus in 11 cases.
Fractured skull in 144 cases.
Other head injury in 131 cases.
Drowning in 70 cases.

By far the greatest single natural cause of sudden and unexpected death is heart disease, and in the great majority of cases coronary artery sclerosis with acute thrombosis is the form of heart disease. One is usually safe in making this diagnosis in cases in which death occurred within a few minutes.

We have become interested in the subject, the causes of death, particularly as they exist in the District of Columbia. We propose to study this subject for 5 years in order to obtain a series of cases sufficiently large to allow us to draw accurate conclusions. We are confining our material to the necropsies performed at the Georgetown University Hospital and on the Georgetown Division of the Gallinger Municipal Hospital, not because other data might not be reliable but because we have proper access to this material and because the work has been performed by a few well qualified men who compare and correlate their findings. The following tabulation embodies the main causes of death in the cases studied postmortem in 1934, exclusive of the month of December. This is, therefore, merely a preliminary report.

MAIN CAUSES OF DEATH IN 220 CASES STUDIED BY NECROPSY

A. Infectious and Related Diseases Other than those Listed Under Systems:

	Cases
1. Septicemia (18 cases)	
(a) Subacute bacterial endocarditis	1
(b) Infected surgical wound	1
(c) Intrauterine septicemia	2
(d) Pregnancy	1
(e) Cellulitis	1
(f) Postoperative	1
(g) Furunculosis	1
(h) Bronchiectasis	1
(i) Simple	6
(j) Circulatory ulcers of leg	1
(k) Following tooth extraction	1
(l) Chronic suppurative lymphadenitis	1
	18
2. Otitis Media (6 cases)	
(a) Acute meningitis	1
(b) Simple bilateral	2
(c) Bronchopneumonia	3
	6
3. Congenital lues	2
4. Typhoid fever	2
5. Whooping cough	1
6. Amebiasis	1
7. Generalized miliary tuberculosis	1
Total (14.09 per cent)	31

B. Pulmonary Diseases:

1. Bronchopneumonia	13
2. Lobar pneumonia	10
3. Pulmonary tuberculosis	15
4. Pulmonary embolism	1
5. Simple asphyxia neonatorum	2
6. Multiple lung abscess	1
Total (19.99 per cent)	42

C. Cardiovascular Diseases:

1. Congenital heart disease	5
2. Rheumatic heart disease	6
3. Syphilitic heart disease	5
4. Hypertensive heart disease	8
5. Arteriosclerotic heart disease	4
6. Adhesive pericarditis with congestive heart failure	1
7. Bronchial asthma with "right heart failure"	1
8. Generalized arteriosclerosis	1
Total (14.09 per cent)	31

D. Gastro-intestinal and Related Diseases:

1. Strangulated hernia		1
2. Acute diffuse peritonitis		12
(a) Non-postoperative (4 cases)		
I. Pelvic inflammatory disease	2	
II. Postabortive	1	
III. Pneumococcic	1	
(b) Postoperative (8 cases)		
I. Acute appendicitis	2	
II. Fibroid uterus	1	
III. Prostatism	1	
IV. Rectal stricture	1	
V. Cholelithiasis	2	
VI. Bladder diverticula	1	
3. Tuberculous peritonitis		6
4. Hepatic portal cirrhosis		5
5. Congenital intrahepatic obstructive jaundice		1
6. Esophageal atresia		1
7. Chronic ulcerative colitis		1
Total (12.27 per cent)		27

E. Diseases of Central Nervous System:

1. Cerebral hemorrhage	3
2. Tuberculous meningitis	2
3. Acute meningitis	1
4. Brain tumor	2
5. Spinal cord tumor	1
6. Syphilis	2
7. Congenital hydrocephalus	1
8. Cerebral embolism	1
9. Arsenical encephalitis	1
Total (6.36 per cent)	14

F. Genito-urinary Diseases:

1. Pyelonephritis	3
2. Chronic glomerulonephritis	3
3. Periurethral phlegmon	2
4. Tuberculosis	1
5. Congenital obstruction of posterior urethra	1
Total (4.54 per cent)	10

G. Metabolic, Endocrine, and Related Diseases:

1. Rickets	1
2. Diabetes	1
3. Pellagra	2
4. Eclampsia	1
5. Toxic thyroid adenoma	1
Total (2.72 per cent)	6

H. Diseases of Blood-forming Organs:

1. Lymphatic leukemia	2
2. Agranulocytic angina	1
3. Hodgkin's disease	2
Total (2.27 per cent)	5

I. Malignant Neoplasms:

1. Carcinoma of stomach	7
2. Carcinoma of breast	2
3. Carcinoma of bladder	2
4. Carcinoma of lung	2
5. Carcinoma of cervix uteri	1
6. Carcinoma of sigmoid	1
7. Carcinoma of cecum	1
8. Retroperitoneal carcinoma	1
9. Sarcoma of esophagus	1
Total (8.18 per cent)	18

K. Miscellaneous:

1. Craniotomy (breech extraction)	1
2. Pregnancy (sudden death, unexplained)	1
3. Unknown	1
Total (1.36 per cent)	3

L. Macerated foeti:

Total (4.54 per cent)	10

When we come to the contributory causes of death or the terminal events in the series, the following table indicates their kinds and incidence.

CONTRIBUTORY CAUSES OF DEATH IN 220 CASES STUDIED BY NECROPSY

	Cases
A. Septicemia (as indicated by bullae of the skin, petechial hemorrhages in organs, thrombophlebitis, blood smears, cultures, etc.)	27
B. Bronchopneumonia	22
C. Tuberculosis	9

	Cases
1. Generalized miliary tuberculosis	3
2. Miliary tuberculosis of the lungs	4
3. Pulmonary tuberculosis	2

D. Lobar pneumonia	6

There was a total of 62 cases in which one or more of these serious contributory diseases existed. This figure represents 28 per cent of the cases.

The table shows the main contributory conditions to be infections, either intravascular or pulmonary. The main causes of death associated with these infections were very diverse, there being no particular diseases which appeared to favor their occurrence more than others. The septicemia or intravascular infection was frequently not definite clinically, but the necropsy findings showed to our satisfaction that this had existed. The outstanding feature of the development of tuberculosis as a terminal condition was that 7 of the 9 cases were in negroes. This incidence indicates the greater susceptibility of the negro race to tuberculosis, especially when there is some disease causing a decrease in resistance. This susceptibility exists with negroes of all ages, as has been demonstrated from year to year at the Municipal Hospital.

Conclusions

1. The death certificate is an important document.

2. The inaccuracy of many death certificates detracts greatly from their value.

3. Clinical determination of the cause of death is often difficult, the general percentage of correct diagnoses being probably less than 50 per cent.

4. Postmortem examinations are of great value statistically and scientifically.

5. When two diseases coexist it may be difficult at times to decide which is the principal cause of death and which the contributory.

6. The exact mechanism of death in many diseases is not fully known.

7. Intravascular infection, pneumonia and tuberculosis are the main contributory or terminal states as shown by a study of 220 necropsies.

8. Negroes are much more susceptible than Caucasians to tuberculosis, both as a primary condition and as a complication.

BIBLIOGRAPHY

Crofton, G. H.: The Death Certificate and Causes of Death. M. Bull. Vet. Admin., 1932, **8**, 298.

Davydovsky, I. V.: Mortality of the Population of Moscow. Virchow's Arch. f. path. Anat., 1930, **276**, 305.

Lepeschkin, W. W.: Death and Its Causes. Quart. Rev. Biol., 1931, **6**, 167.

Neuhof, H., and Aufses, A. H.: Causes of Death after Operation. Ann. Surg., 1930, **91**, 321.

Sheldon, S.: Sudden and Uncertified Deaths. M. J. Australia, 1932, **1**, 252.

Warren, S.: Immediate Causes of Death in Cancer. Am. J. M. Sc., 1932, **184**, 610.

Electrocardiographic Changes Following the Administration of Potassium Iodid in Syphilitic Heart Disease.—This case is presented as evidence of marked change taking place in the syphilitic heart, following the administration of potassium iodid, even in comparatively small doses.

Case Report. The patient, a man aged 55, when first seen on February 1, 1934, complained of shortness of breath. This condition was noticed some 3 months before, when climbing stairs. At that time he was given "green drops" by his physician and felt better within a week. He returned to work and had no further trouble until the week preceding the present visit, when he began to experience shortness of breath at night. He dreamed and wakened with a feeling of smothering. After sitting up for an hour or more, he could go back to sleep. He experienced no difficulty when walking on the level, but climbing two flights of stairs caused trouble. . . . On April 14, the patient reported one attack of dyspnea without definite change in the findings of physical examination. The variations in the T wave in all leads when he was taking potassium iodid without mercury are to be noted. . . . Potassium iodid was discontinued and administration of 1/24 grain of bichlorid of mercury, 3 times daily, was resumed. The patient reported increased shortness of breath on April 21. From the electrocardiogram it can be seen that the T wave had become upright in Leads II and III and were only slightly inverted in Lead I. It would, therefore, seem that the potassium iodid was the cause of the variations in the T waves, since they occurred when he was taking potassium iodid without mercury and disappeared when he took mercury without potassium iodid. . . .

Summary. A case of luetic heart disease is presented, showing marked changes in the electrocardiogram, following the administration of potassium iodid, which disappeared when the potassium iodid was stopped, to recur when the iodid was renewed. It is believed that further study will cause a change in the prevalent ideas regarding the treatment of this condition, and that such a study may also be useful in diagnosis. No similar changes in other heart conditions have been noted, in the few cases observed.—*Extract from article by* J. M. Bamber, M.D., New Orleans, La., *American Journal of Medical Sciences, May, 1935, p. 681.*

THE TREATMENT OF OCULAR INJURIES*

Oscar Wilkinson, M.D.
Washington

In discussing the treatment of ocular injuries I shall limit my remarks to a rapid review of the method of handling lid injuries, corneal injuries and bulbar injuries. I am purposely covering a large field in order that we may have the benefit, in the discussion, of the mature and fruitful experience of some of our guests and confreres.

Serious injuries to the lids are more frequent now than they were a few years ago, due largely to the excessive speed in automobile traffic and carelessness on the part of employees in industrial work. Very serious injuries of the lids are frequently seen in automobile accidents and these are caused in a large majority of cases by broken glass from either the windshield or the doors. There should be a regulation prohibiting any glass except non-shatterable glass being placed in an automobile.

Injuries of the Eyelids

The indications in treating the lid injury are the control of hemorrhage, the removal of all debris, the cleansing away of any seriously macerated tissues and the accurate bringing together of the various severed tissues. The accurate adjustment of the various tissues reduces the scar and at the same time prevents contractions with their marked disfigurements. Macerated muscles should be cleansed and pared and brought together with "mattress," catgut sutures. The skin surfaces, where macerated, should be cleansed, accuratedly pared with delicateness and the tissues restored to their original position and sewed with very fine silk sutures, using the finest needles. It is particularly important that the lid margins be properly approximate, since the very slightest notch in the lids causes a great deal of disfigurement.

---

* Read before the joint meeting of the Sections on Opthalmology and Otolaryngology, the Baltimore City Medical Society and the Medical Society of the District of Columbia, February 15, 1935.

This is best done by using very fine silk "mattress" sutures accurately placed.

INJURIES OF THE CORNEA

The importance of injuries of the cornea can be realized when we note that at least 90 per cent of all accidents to the eye cause some injury to the cornea. Probably 60 per cent of the industrial injuries are foreign bodies in the cornea. These should not be removed by anyone except an oculist, except in those cases in which the foreign bodies can be easily wiped off by means of a wet cotton tipped applicator. First aid attempted by an unskilled hand very frequently does a great deal of damage to the eye. Since the establishment of Workmen's Compensation, the care of corneal injuries by competent ophthalmologists has been more general, and the incidence of serious results from neglect following eye injuries have been markedly reduced. Those in charge of the first aid should be instructed to place on the eye a tight bandage and send the patient to an oculist at once. I am glad to state that this procedure is becoming more universally practiced.

Slight abrasions of the cornea, without foreign bodies, usually heal within 24 to 48 hours, if the eye is properly cleansed, a mild protein and a drop of mydriatic used, and the eye bandaged. In the removal of the foreign bodies from the cornea, the greatest care should be exercised in order to prevent any additional damage. The use of very small dental burrs for the removal of the yellowish discoloration caused by hot foreign bodies is recommended. The use of antiseptics and cycloplegics must be determined by the amount of sepsis and the traumatism present. In the absence of infection, the use of mild mercurial ointment, with or without atropin, and hot applications are indicated.

Serious or perforating wounds of the cornea should be covered with a Van Lint flap, and atropin and aseptic lotion used. Injuries caused by stones or wood are more apt to be infected than those by metal. In such cases it is advisable, after cleansing thoroughly and removing debris, to sterilize the wounds by the generous application of Lugol's solution. If prolapse of the iris is present, the iris should be replaced in the anterior chamber, when possible; if this is not possible, the protruding piece of iris should be snipped off, after which an attempt should be made to replace the iris in the anterior chamber. Usually it is advisable to cover the injured area with a conjunctival flap.

ILLUSTRATIVE CASES

Case 1: G. DeL., aged 22 years, presented a deep corneoscleral laceration on September 16, 1932, the right eye having been cut from windshield glass in an automobile accident. Operation was performed on September 17. There was a deep, clean, angular laceration through the cornea, limbus and sclera at "7 o'clock;" the wound extended from near the center of the cornea and into the sclera for a distance of 1.5 cm. The iris and ciliary body were prolapsed. The repair consisted of cutting of the prolapsed iris, replacement of the ciliary body and suturing of the cornea and sclera, the work requiring 3 black silk sutures. Two broad conjunctival overlapping flaps were used to cover the wound. The eye healed uneventfully, and there is no irritation in either eye. The patient now has vision of 20/30 plus 3 letters with correction. Of course, such injuries demand watchful care for sympathetic ophthalmic. This is a fine illustration of what can be accomplished in serious eye injuries in young subjects.

Case 2: Anna L., aged 14 years, suffered a perforating wound at the limbus, with prolapse of the iris on October 9, 1934. Several young girls were skating; some boys came up and tossed some nails in the air and one happened to strike this patient in the left eye. There was a small perforation at the limbus at "10 o'clock," the iris was prolapsed and the pupil distorted. Vision in each eye was 20/20. On October 11, a very small piece of iris was removed, and irrigation through the wound was used to float the iris back in place. The eye healed uneventfully. Vision is 20/15, and the fundus is negative. The pupil is practically round, the eye is quiet and there is no disfigurement. When possible, irridectomy should be avoided, particularly in young subjects on account of disfigurement.

INTRA-OCULAR FOREIGN BODIES

Intra-ocular foreign bodies occur in about 1 in 1,000 cases. They occur in about 1 in 300 of all ocular injuries. Of these, about 5 per cent get normal vision, 22 per cent good vision, 32 per cent retain the eyeball, and at least 15 per cent will lose the eyeball. The prognosis in intra-ocular injuries depends upon the position, size and composition of the foreign body, the amount of traumatism present, and the time elapsing before the eye receives proper treatment.

Foreign bodies in the anterior chamber offer for several reasons a better prognosis than those passing in behind the lens. In the first place, there is usually not so much serious damage and their removal is accomplished with so much less further damage. The anterior chamber is not nearly so sensitive to traumatism as the vitreous body itself. The use of the hand magnet is always indicated in the removal of those foreign bodies which are magnetized. Great care should be used in removing large particles with a strong magnet, since much damage can be done if the metal happens to be entangled in the iris. It is advisable to undertake the removal of foreign bodies through the original opening produced by the metal. At times it may be advisable to make an additional opening. When the original wound has closed, one should open the eye at the most advantageous place.

Foreign bodies entangled in the iris may have to be removed by a forceps and scissors, a piece of the iris being excised, even if they are magnetized. In the removal of non-magnetized foreign bodies through the anterior chamber it is very frequently advisable to make a separate opening. Magnetized bodies in the lens should usually be removed at once, if possible, notwithstanding the fact the lens itself very frequently shows a great deal of resistance to small foreign bodies. Iron particles in the lens usually destroy the sight by producing siderosis if they do not produce a cataract. When the lens is seriously injured, it is usually advisable to make a separate incision and extract as much of the lens as possible, since it is apt to cause glaucomatous tension.

A foreign body in the vitreous is always a serious injury, since the vitreous is the most susceptible tissue in the eye to injury and infection. Some of you no doubt remember the very interesting paper presented before our Society by Dr. Samuel of New York a few years ago and also the pictures of the pathological specimens he presented. It would appear from his observations that no eye could ever be well after a vitreous injury.

In the treatment of foreign bodies in the vitreous the use of the magnet is also indicated when the foreign body is magnetized. An effort should be made to bring the foreign body forward around the lens into the anterior chamber and then out through the original wound. When the foreign body is large, much damage can be done with the use of strong magnets, and the more damage done to the vitreous the more serious the prognosis.

ILLUSTRATIVE CASE

Case 3: James M. C., on October 5, 1933, while knocking concrete off of a beam with a hammer, suffered penetration of the left globe by a foreign body. Examination on October 12, showed a minute healed wound of the sclera near the limbus and a foreign body about the size of a pinhead with a rough gray surface floating in the vitreous at "10 o'clock" midway between the retina and the lens. There was no hemorrhage, the vitreous was clear and the lens was not injured, since the foreign body entered between the lens and the ciliary body. The patient had been examined elsewhere and the question had been raised as to the nature of the foreign body. The impression was that it was concrete. The pupil was dilated, and the behavior of the foreign body was watched with the ophthalmoscope. As the magnet approached near the eye, the object moved, showing that it was magnetized. This established the fact that it was a piece of metal. A sclerotomy was performed directly over the foreign body about 11 mm. posterior to the cornea. On making the sclerotomy opening the greatest care was exercised not to injure the vitreous. The end of a delicate spatula was placed in the scleral incision but not in the vitreous, and the magnet tip was contacted with the spatula. As the current was turned on, the piece of metal appeared in the incision and was removed attached to the spatula, without the loss of the vitreous. The conjunctival flap was closed and the eye healed uneventfully with the exception of a spasm of accommodation which was relieved by correcting lenses. Vision is now 20/15 minus 3 letters.

Foreign bodies in the posterior chamber, when the cases are first seen after the original wound has healed, are sometimes removed by making a very minute incision through the sclera near the site of the foreign body. The use of the hand magnet is preferable in these cases, and it is desirable to use a spatula or pointed scissors instead of the blunt point of the magnet, since the greatest delicateness is necessary. There are many statistics with reference to the ill effects of the post-scleral incision. Duggan of New York reports a series of cases and shows that the incidence of retinal exudate or retinal detachments was much higher in those cases in which a scleral incision was made. His statistics show only 11 per cent of such complications when the foreign body was brought around the lens and removed through the anterior chamber, whereas it was 52 per cent when scleral wounds were made. This would seem to give warning against such serious injury to the sclera as is being done in the operations for detachment of the retina. Verhoeff of Boston prefers the removal through the anterior route, whereas Stieren of Pittsburgh advocates the scleral route. There is much to be said in favor of the anterior route when the patient is seen early and when the foreign body is small, but I feel that if the case is seen later and the foreign body is near the scleral surface and one is careful in making his scleral incision, that procedure is still justifiable, if not preferable.

TRANSBULBAR INJURIES

In transbulbar injuries enucleation is very frequently indicated. Some authors give as high as 50 per cent. It can be readily seen what terrific force must be necessary to send a foreign body clear through the eye. In addition to this serious injury to the vitreous there are 2 perforations in the globe, which in themselves make it more serious. When the eye has quieted down, it is usually not advisable to undertake the removal of the foreign body.

BIBLIOGRAPHY

DUGGAN, W. F.: Visual Results in Cases of Intra-ocular Foreign Bodies; Study of 270 Cases. Arch. Ophth., 1933, **10**, 768.

STIEREN, E.: Magnet Extraction from Vitreous. Am. J. Ophth., 1932, **15**, 1120.

VERHOEFF, F. H.: Magnetic Foreign Bodies and Their Removal. Am. J. Ophth., 1932, **15**, 685.

Hormonic Symptomatology of the Thyroid: To What Extent is it Explicable on the Basis of Altered Metabolic Rate.—Compared with that of some other endocrine glands, the hormonic symptomatology of the thyroid should be easy to interpret. So far as known, the thyroid has the sole function of manufacturing the hormone thyroxin. The biologic rôle of this substance has, to a considerable extent, been identified. It is desirable, therefore, to attempt to translate clinical phenomena into terms of known physiological actions. Although in the case of thyroxin, as with other hormones, these actions are doubtless several, we have become accustomed in clinical work to think largely in terms of its calorigenic action. This is because we make use of calorigenic action, in the form of basal metabolic rate, to measure the degree of hyperthyroidism or hypothyroidism in our patients. . . .

Summary. On the basis of comparisons of the symptoms and signs of hyperthyroidism with those of hypermetabolism, produced by calorigenic agents other than thyroxin on the one hand and of the symptoms and signs of hypothyroidism with those of hypometabolism in persons without discoverable thyroid disease on the other, the attempt has been made to divide thyroid hormonic symptomatology in a calorigenic and a non-calorigenic panel. . . . The study indicates that the symptoms attributable simply to increased heat production consist in not much more than increased sweating, sensation of warmth, warm skin, flushing and weight loss and those of simple decreased heat production consist in decreased sweating, chilliness, dry, cold skin and to some extent weight gain. The other symptoms and signs of hyperthyroidism and hypothyroidism are due to physiologic actions of thyroxin other than its calorigenic and the whole picture in these conditions is specific to the thyroid and not a simple matter of metabolic rate alteration.—*Extract from article by* J. H. MEANS, M.D., AND J. LERMAN, M.D., Boston, *Endocrinology, March-April, 1935, p. 181.*

The Fundamentals of Internal Medicine

APPLIED PHARMACODYNAMICS: RATIONAL THERAPEUTICS

THEODORE KOPPANYI, PH.D.

Professor of Pharmacology, Georgetown University School of Medicine

One needs only to glance at the shelves of a modern drug store to realize that the days of therapeutic nihilism are no longer. But these very shelves bear witness to the fact that the reaction against therapeutic nihilism has not been altogether wholesome. In its wake a veritable avalanche of medicinal nostrums and frauds has swept over Europe and America. A strong current of prenihilistic vagaries in the use of medicines has continued to this day to run through the public attitude and through the practices of a considerable part of the medical profession. The very scientific methods that have contributed much to the progress of modern medicine have been misapplied to multiply medicinal agents beyond all the bounds of reason and usefulness.

EMPIRICAL AND RATIONAL THERAPEUTICS

It is evident that therapeutic nihilism was not the cure for the malignant disease that has afflicted medical treatment from time immemorial. The scientific advances of the last few decades have brought forth a far more subtle remedy in the evolution of new principles of practice. These have done more to check this evil and promote sound medical treatment than the combined efforts of all the preceding centuries. Pharmacodynamics is responsible for a thorough revision of drug treatment of disease and the replacement of the old empirical therapeutics by the new rational method of using drugs. The empirical therapeutics of days bygone and, not infrequently still practiced, set up a single criterion for the use of a drug in disease, that is, whether or not the administration of the drug was followed by alleviation or improvement of symptoms of disease. In other words, the only question the empirical therapeutists were asking themselves was whether the drug "worked." It is obvious that this point of view dangerously resembled the "post hoc, ergo propter hoc" slogan. Upon closer examination most claims of the empirical therapeutists were found to be untenable. It must be admitted, however, that by their hit or miss method they did happen to find a few really useful remedies. It would have been nothing short of miraculous if they had always made the wrong guess as to the selection of an effective remedial agent.

Rational therapeutics differs from the empirical and it is not a lineal descendant of the practices of the latter. It is altogether a different product arising from the new medical culture of the past 100 years. It is built on the basis of the relatively new science of pharmacology which enabled us to ascertain the probable dangers and medicinal value of drugs upon animals before patients are subjected to them. In other words a rational therapeutist would hesitate to use a drug even though recommended to him that it did "work," unless he understood the mode, the locus, and the duration of its action, and familiarized himself with the toxicity of the drug and the toxic symptoms it produces.

The difference between empirical and rational therapeutics may be best illustrated by an example. The dried leaves of digitalis were used by empirical and are still being used by rational therapeutists. The former have accidentally discovered that digitalis relieved numerous cases of dropsy. It "worked." But when the study of digitalis action was attacked by modern pharmacology in animal experiments and clinical studies it soon became evident that the main action of digitalis is on the heart, and that its beneficial effects in dropsy are due indirectly to the slowing of the heart and increase in the force of its beat. The improved circulation, then, removes the excess edematous fluids which is excreted by the kidneys. One can appreciate the practical value of this knowledge when one considers that dropsy, or the abnormal accumulation of body fluids in the tissue spaces may be due to a multitude of causes, and not necessarily to a failing circulation. It is only when due to an inefficient cardiac function with beats so weak as to result in a stagnation of the blood in the veins that digitalis really cures dropsy. Thus, if a patient with dropsy presents himself to an empirical therapeutist he is being given digitalis because digitalis "worked" in similar cases. A modern rational physician who understands digitalis action will ascertain first whether dropsy is a result of heart failure or a kidney or liver disorder. If he finds that it is not due to heart failure he wastes no time with digitalis, which, he knows will be ineffective. However, if he finds that dropsy is due to a failing heart he then administers digitalis focusing his attention entirely upon the changes in the patient's heart. He gives enough of this medicine to restore the normal heart beat which automatically takes care of the dropsy. Digitalis is a very effective and potent remedy and very toxic in excessive doses. The rational physician knowing the approximate toxicity of this drug and the first toxic symptoms it produces not only uses this drug to the utmost advantage but is able to reduce its dangers.

Dangers of Empirical Therapeutics

The pursuit of the treatment of disease by purely empirical methods not only sets up great limitations to the progress of medicine but carries with it many dangers. It is to be borne in mind that a great many medicines, after their administration, enter the blood stream rapidly and are distributed to every organ of the body and upon some of which they may act. That the average individual seems to realize this fact is evidenced by the common fear that certain headache remedies may injure the heart while relieving the headache. The fact not commonly appreciated is that a drug may act upon many different structures and in many different ways and yet produce the same apparent effects. There are, for instance, a number of drugs the administration of which results in a lowering of blood pressure. Nitrites, however, bring this about by depressing the smooth musculature of the arterioles; histamine by dilating the capillary bed; aconite and veratrum viride by depressing the heart; opiates by depressing the vasoconstrictor center in the medulla.

Another practical example may be taken from the treatment of diabetes. Any medicine that reduced the surplus sugar in the blood has always been eagerly welcomed by physicians as a possible remedy for diabetes. Insulin was discovered to reduce the excess blood sugar, and extensive experimentation revealed that it does so by increasing the ability of the body to utilize sugar. It has, therefore, come to remain as a standard remedy in the treatment of diabetes. Insulin has one disadvantage, however, that it is not effective unless it is given by injection. More recently a proprietary drug, called synthalin, was introduced for the treatment of sufferers of diabetes because it was found that it could reduce blood sugar even if taken by mouth. However, it came to be widely used on patients long before careful animal experiments revealed the fact that the reduction of blood sugar by this new medicine is not due to an increased capacity of the body to utilize sugar, but to an injury to the liver—the main depository of carbohydrates in the body.

These examples should suffice to demonstrate the absolute necessity of a thorough pharmacological investigation of a remedial agent before it is used in the treatment of disease. The physician armed with a knowledge of the pharmacology and toxicology of a drug can afford to use it fearlessly; he knows what it does, how far he can go with it, he becomes the master instead of the slave of drugs. Hitherto physicians were very often afraid to use really potent drugs; ouabain, for example, because they lacked this mastery. The practice of rational therapeutics makes it possible to use really potent remedies.

EFFECTIVE DOSAGE

The amounts of drugs to be used in combating disease, i.e., effective dosage, has been a great stumbling block to medical practitioners. If a physician does not have a thorough foundation in pharmacology and toxicology it is indeed well for him to rely upon the average and usually extremely safe doses of the pharmacopoeia, or other standard publications. However, these standard compendia say nothing about the total amount of drugs to be used daily or weekly or even monthly, in treating certain conditions. The pharmacopoeial dose of acetyl salicylic acid is 5 grains, but physicians may be compelled to administer 70 or more grains daily, of this drug, to relieve an attack of acute rheumatic fever. The physician would not dare to do this unless he thoroughly understood the effects of acetyl salicylic acid.

In order to administer drugs in amounts sufficient to be of real use, the rational therapeutist must take a number of things into consideration. He must know that age, sex, weight and physical condition of the patient must be taken into account before he proceeds to administer drugs. The size of the dose is directly proportional to the weight and, in children, also to the age. Females and patients in emaciated condition usually require lesser amounts than others. Some patients show a marked tolerance for a certain drug; others, on the contrary, are hypersensitive to the same remedial agent. The only way to find this out is to start out with administration of small amounts and increase the dose gradually.

Obviously the purpose of drug administration is to obtain full therapeutic effects. These can be brought about only by giving "enough" of the remedial agent and this optimum amount will vary not only according to the age or weight of the patient, but also according to the severity of his pathological condition. It is equally clear that there must be certain limits beyond which one cannot increase the dose of drugs. The upper limits which mark the administration of drugs are either the full therapeutic effects or the appearance of minor toxic symptoms.

In order to administer drugs according to this scheme it is not sufficient for the physician to be familiar with the official single doses of the several remedial agents. He must indeed know what full therapeutic effects can be expected from a certain drug, and must be thoroughly familiar with the early toxic manifestations of the drug in human beings.

As an illustration, the official dose of atropine sulphate is 1/120 grain. It is well known that this drug is widely used to relieve intestinal spasm. There are a multitude of causes of intestinal colic, and atropine will bring about in many such cases a relaxation of the gut and, therefore, a cessation of the spasm, while it is ineffective in other cases. Atropine is a potent alkaloid and many individuals may show hypersensitiveness to it. Therefore, it may be advisable to administer an initial dose even lower than the official, 1/200 grain, for example. In some people this amount might suffice to relieve the spasm, and thus the physician and the patient are spared from further administration. In many patients, however, this dose will not suffice to bring about full therapeutic effects, in this instance the relief of the colic, and the physician will be obliged to increase the dose. How far can he go? The answer is simple. He must give enough atropine to relieve the spasm or until he observes the appearance of the very early manifestations of atropine poisoning, i.e., the minor toxic symptoms. If he notices that the patient's pupils are dilated, the throat and tongue become dry and even the pulse becomes more rapid, he knows that the early symptoms of atropine poisoning have set in and he must discontinue the administration of the drug. It is obvious that if a drug elicits minor toxic symptoms without causing appreciable therapeutic results, its further use is futile and dangerous and the physician must look for other therapeutic measures to relieve the condition.

A thorough knowledge of the minor toxic symptoms produced by the remedial agents is a condition *sine qua non* for the practice of rational therapeutics. They are the red stop lights beyond which one must not go. However, one must bear in mind that certain drugs produce late toxic symptoms without visible early manifestations, and common therapeutic experience had already determined the safe dosage of these drugs. This is especially true for the arsphenamines and several drugs of the heavy metal series. A course of arsphenamine or mercury salicylate treatment for syphilis, for example, has already been well standardized and the advice of standard compendia may be safely followed on that score.

It can be readily seen that the practice of rational therapeutics is an arduous task indeed. This task must be simplified to make the practice of it successful. The practitioner must be advised as to selection of proper remedial agents and once these agents are selected they must be used in such a manner as to enable the physician to judge their effects without complicating factors. The latter can be effected only if the physician is allowed to use a single drug without disturbing adjuvants.

SELECTION OF PROPER REMEDIAL AGENTS

As to the selection of proper remedial agents the medical profession in the United States did not meet the utter chaos in the use of drugs with the despair of the Viennese school that resulted in therapeutic nihilism. The American Medical Association established the Council on Pharmacy and Chemistry about 30 years ago for the purpose of attacking this problem with the implements of scientific medicine. The Council is composed of a group of leaders in chemistry, pharmacology, and the special fields of medicine, affiliated with the greatest hospitals and medical organizations in the United States, with enormous facilities for the analysis and investigation of medicinal agents both upon animals and man.

Among its various activities the Council publishes two books, one called "Useful Drugs" and the other "New and Nonofficial Remedies," the most valuable guides to the facts in the selection of proper remedial agents that have ever been available to physicians.

The "Useful Drugs" deals mostly with the official drugs described in the tenth revision of the Pharmacopoeia of the United States. Out of the many preparations described in the official publication the "Useful Drugs" selects those which the Council considered really useful and necessary in the treatment of disease. It is safe to state that a physician will be seldom if ever called upon to prescribe drugs other than listed in the "Useful Drugs" if he proposes to practice rational therapeutics.

The "New and Nonofficial Remedies" (N. N. R.) deals with the proprietary drugs. This book divides the great masses of proprietary medicines into two fundamental classes, those with claims that are valid and those with claims that can neither be substantiated by the manufacturer nor anyone else. This work of the Council has largely relieved the practicing physician of the necessity of using his patients as experimental animals to determine which drug has true value and which has not, so that he can devote himself more fully to the equally difficult task of using valuable agents judiciously, a task which indeed has not been made simpler but far more complex by the advance of medical knowledge.

If a proprietary drug is placed on the approved list of the "New and Nonofficial Remedies," it does not mean that the Council recommends its use. It only means that the Council considers the claims of its manufacturer valid. For example, a large number of proprietary digitalis preparations are listed in the "New and Nonofficial Remedies." They are all potent preparations and have been standardized in the proper manner. But the Council does not state that they possess any advantage over the official digitalis preparations described in the "Useful Drugs." Most of the preparations listed in the "New and Nonofficial Remedies" have their official equivalents in the "Useful Drugs" and it is to be remembered that a great advantage of using an official instead of a proprietary drug is the low cost of the former.

THE USE OF FIXED MIXTURES

After selecting the proper remedial agent one should be careful to give it a fair chance in the treatment of the sick. This necessitates not only administration in sufficient doses but administration in a pure state so that neither the therapeutic effects nor the minor toxic symptoms be delayed or obscured by other drugs administered simultaneously. In other words, the use of fixed mixtures is to be discouraged in the practice of rational therapeutics. One of the early Arabian physicians, Rhazes (865–925 A.D.) of Bagdad had said already: "When simple diet suffices do not prescribe drugs, when single remedies avail do not use compound ones."

Rhazes' dictum uttered in the dark ages of medicine is not followed by many physicians even today. They continue to use mixtures of drugs of fixed proportions resorting not seldom to time-honored "shotgun" prescriptions. If a compound prescription contains more than one active ingredient, the physician has no means to ascertain the ultimate power of any one of the single ingredients; he can not use his drugs to their limits of capacity. In fact he will never learn to use drugs rationally. The main theoretical and practical objection against using drug mixtures of fixed proportions is the unpleasant but usually forgotten fact that the several constituents of the mixture almost inevitably have a different rate of elimination, thus upon every repetition of the dose the relative proportions of the active constituents of the mixture in the human body will be changed.

Two practical examples may be selected to demonstrate both of the above discussed points. The fact that one cannot risk using a drug to the point of full therapeutic effects if it is administered with other potent remedies may be illustrated by reminding the physician that one can not use digitalis to its fullest advantage if the drug is given simultaneously with other potent drugs such as caffeine or strychnine. Even if one should admit that caffeine or strychnine, intensifies digitalis action (which is by no means the case), the simultaneous administration of these drugs is highly irrational since the total quantities of each necessary to produce the full therapeutic effects has to be determined in each patient by a gradual increase of the dose. The usual result of such a medication is that none of the constituents of the mixture are used in adequate doses and to the fullest advantage.

The second example may be used to demonstrate the possibility of obtaining different relative proportions of simultaneously administered drugs in the body upon repeating the dose of fixed mixtures. Various mixtures, each consisting of an antipyretic analgesic (e.g., antipyrine, amidopyrine) and a hypnotic of the barbital type, are used extensively for the relief of pain. The dose must be repeated when the analgesic effect ceases. It was shown, however, that the analgesic part of the mixture is eliminated at least twice and in some cases 10 times as rapidly as the barbiturate constituent of the mixture. This difference in the duration of action must result in progressively altered ratios of the concentration of the separate constituents in the human body with repetitions of the dose. The dose of the analgesic requires more frequent repetition than that of the barbiturate, therefore, the administration of the two in the same tablet or capsule or solution is highly irrational.

METHODS OF DRUG ADMINISTRATION

The rational therapeutist must also be familiar with the best possible method and the most suitable route for the administration of each remedial agent. Drugs may be administered enterally, i.e., by the gastro-intestinal tract, or parenterally, i.e., by any channel excepting the alimentary tract. Whenever possible, drugs should always be given orally or if this is not feasible on account of gastric irritation or nausea, by retention enema using a small volume of liquid. Most patients tolerate digitalis preparations when taken by mouth, but for the few patients who do not, the rectal administration may be recommended.

The most commonly used forms of parenteral administration are inunction, inhalation, and injection. Inunction, i.e., dermal application with friction, requires that the drug be contained in an ointment base. Inhalation presupposes that the drug be either gaseous or highly volatile in nature (carbon dioxide, oxygen, nitrous oxide—ether, chloroform, amyl nitrite). The different methods of injection became popular after the introduction of the hypodermic syringe and needle in Europe by Rynd and Pravaz (1845–1851), and in America by Barker and Elliott (1856–1858). Injections may be given intracutaneously, subcutaneously (hypodermically), intramuscularly, intraperitoneally, intraspinally, and intravenously. The intravenous injection yields obviously the most rapid results, but is also the most hazardous. It should never be used unless it is the only channel by which the drug can be given (arsphenamine) or if very quick action is desired and no delay can be permitted (ouabain in certain cases of heart failure). It should always be remembered that injections be only given if the enteral administration is not feasible, if the patient does not tolerate it, or if the drug is destroyed in the alimentary canal.

Certain clinical specialties require other routes of administration. Nitroglycerine may be given sublingually, i.e., the hypodermic tablet is simply placed on the mucous membrane beneath the tongue; eye lotions and other aqueous solutions may be given by instillation into the conjunctival sac, the mucous membranes of the nose and throat, urethra, vagina, etc.

Drug treatment of disease has made tremendous advances since the days of therapeutic nihilism. The watchword of the therapeutic nihilists that there are no true healers but only fortunate physicians is no longer true. Pharmacological research by its animal experiments and well-controlled clinical studies had brought relief and often cure to the sick.

Embolism from Saphenous Thrombophlebitis and its Prophylaxis.—The customary passive attitude in dealing with thrombosis in a superficial vein is probably due to the comparative rarity of serious embolism from this source. A survey of the recent literature, however, indicates that the danger of an embolic accident or of an occasional death from such a thrombosis is not negligible. . . .

Technic. Local anesthesia is used, and the operation may be performed in bed if the patient is too ill to be moved. An incision three to four cm. long, just below and parallel to the crease of the groin, is made with the outer end of the incision just over the femoral pulsation. The saphenous vein is thus easily exposed just before it enters the fossa ovalis. We would emphasize the importance of placing the ligature as closely as possible to the saphenofemoral junction in order to minimize thrombosis in the proximal segment. We prefer silk to catgut. The technic is modified in the individual case. For *thrombosis not associated with varicose veins* simple ligation in continuity is adequate; . . .

Summary and Conclusions. 1. Thrombosis of the saphenous vein may cause fatal embolism.

2. Report is made of three patients who suffered serious embolism, one resulting in death, from saphenous thrombophlebitis.

3. A surgical method of prophylaxis against such embolism is described.—*Extract from article by* JOHN B. SEARS, M.D., Boston, Mass., *New England Journal of Medicine, May 9, 1935, p. 874.*

THE DOCTOR AND HIS BUSINESS RELATIONS*

Frederick A. Fenning

General Counsel, Medical Society of the District of Columbia

Many people believe that the doctor was divorced from his business relations when he received a medical diploma. The doctor will admit that while he has business relations they are skeletons in the family closet, they never did anything to help him and on various occasions cost him a lot of money. They are a perambulatory lot, but have uncanny facility in locating him and pestering him with a mass of unintelligible and inconsequential details. When cornered, the doctor will talk of these relations but always with reluctance and will avail himself of the slightest opportunity of changing the subject.

It is the purpose of this paper—presumptuous, if you please, but well-intentioned nevertheless—to endeavor not only to bring about a feeling of friendship and harmony between the doctor and his business relations but to impress upon the former that these relations are of his own flesh and blood and that if treated with consideration and respect they will help him "balance the budget."

It has been proclaimed far and wide, both by innuendo and direct allegation, that physicians are poor business men. Here and now, in this assembly of medical men, and with no purpose of seeking to incur favors, I lay down the postulate that by their education and training doctors are equipped to be good business men. Medical men, by reason of the very nature of their professional work, have fact-finding minds. On seeing a new patient, the doctor undertakes, first of all, to make a diagnosis. This requires that he find the facts. He studiously endeavors to separate symptoms from pseudo-symptoms, the real from the false, and thus to arrive at the facts, for only by this method can a trustworthy diagnosis be made.

There is a striking similarity in the mental processes involved in making a diagnosis and in determining a business problem, for in each instance the function of the mind is to evaluate the pros and the cons, to accept the genuine and discard the spurious, to find the facts. The doctor regards the formative work in reaching a diagnosis as requiring the highest degree of professional skill, in other words as a matter demanding thought. The mental effort may be purely a part of professional routine, but without the ability to use his mind in this way the doctor would be incapable, inefficient and incompetent. The medical man who is called upon to determine a question of business policy, whether it be to buy the winter supply of fuel oil or to build a residence, must perforce give the requisite amount of thought to the facts on which the transaction is based. He may be assured that the oil company or the contractor, as the case may be, will get complete information as to the customer's credit rating or bank standing, and by the same token the doctor should ascertain the facts as to the quality of the oil and reliability of the company, or the experience and integrity of the contractor.

It does not require any pronounced degree of business acumen to enable a professional man to determine the facts respecting an ordinary business proposition. It is requisite, however, that the inquirer or investigator apply his personal intelligence to the task. The doctor is accustomed to seeking the facts in solving medical problems, but does he use his fact-finding mind in business matters? The answer, with respect to a substantial number of the profession, would seem to be that he does not. One reason is that the average medical man is prone to assume or take it for granted that not being a business man he cannot determine a business procedure. Indeed, he has built up a defense reaction by which he undertakes to persuade himself that business affairs are wholly out of his line of activity, they are distracting and he must not be expected to give attention to such matters. Here he makes the big mistake of overlooking or disregarding a patent truth which is that professional men, with few exceptions, are charged with the personal duty of so conducting their own affairs that they may maintain balanced budgets during life and leave solvent estates. This can be accomplished only by giving personal thought and attention to the multiple affairs—some large and some small—that enter into the broad scheme of life. The same talent which enables him to determine facts in medical practice makes it possible for the physician to find facts which bear upon personal business affairs. It may be that the capacity has become well-nigh extirpated by disuse but it is only in a state of latency and can be and should be revived.

---

* Read before the Society, February 27, 1935.

It requires only small effort to enable a physician to know his exact financial status, and he should have this knowledge not less frequently than once a year. Whether he keeps his own books of account or employs a bookkeeper he should have before him at regular intervals, preferably on January first of each year, a statement showing his assets and his liabilities. The assets must be listed at their then market value, that is, the price for which they could then be sold. Cost price, sentimental value and anticipated appreciation cannot be considered, for a man can never afford to try to fool himself as to his financial worth. Nor should a doctor, unless he be the owner of a well established hospital or sanitarium, include good will as an asset. Opinions in cases that have reached the courts have emphasized the fact that good will of a medical practice is a most intangible and uncertain asset. If the doctor owns his home, he must remember in inventorying it that a house deteriorates and that thus its value is lessened each year. If built of brick there is an estimated depreciation of 2 per cent a year, or if frame, of 3 to 3½ per cent a year. If the doctor has professional instruments listed as assets he must mark down their values ruthlessly until they are carried at a fair market price. The paid-up value of life insurance policies undoubtedly is an asset and may be so listed, but if the insurance is being carried for the benefit or protection of dependents, it is much the better practice for the physician to omit this item in figuring his own financial standing. If he surrenders such insurance for its paid-up value, or, indeed, if he borrows on the policies, he is in reality taking for his own use, funds which have been placed aside and clearly earmarked for those dependent upon him in life and on the insurance after his death. Overdue and unpaid accounts may aggregate a substantial amount. If these are considered in a statement of assets the doctor should try to determine what percentage would be paid if he should die and his estate undertake to collect. This is a reasonable and conservative yardstick with which to measure accounts due. In general, all questions which arise in the doctor's mind as to values should be decided against himself and never in his own favor. It is far better—should it later develop that a mistake was made—to be agreeably surprised than to be painfully shocked.

Having completed the schedules, the net present worth of the doctor is ascertained by deducting liabilities from assets. He then knows where he stands, unless he has potential liabilities such as may be incurred by going on bonds or endorsing notes for other persons, or being the owner of bank stock having a double liability. Any or all of these potentialities may eventuate and thus seriously reduce or completely wipe out an otherwise satisfactory balance sheet. The doctor should safeguard against this possibility. He should refuse to become surety on bonds; such service can be obtained from companies organized for the purpose. He should refuse to endorse notes unless he is willing to pay the full amount of same and can do so without financial embarrassment. Bank stock with double liability should be held only in an amount bearing a reasonable proportion to the value of the holder's entire estate.

Individual financial statements should be preserved. When such a statement is completed it should be compared with those of preceding years. In the event of death, a statement of this nature is a very positive help in inventorying the condition of a decedent's estate.

Occasionally a physician is visited by a representative of the Dun-Bradstreet Agency and asked for figures as to his financial condition. Assuming that he is solvent, it is distinctly to the advantage of the physician to fully and frankly furnish the desired information and to verify it, if requested, by the exhibition of securities and bank statements. Inquiries of this nature are not prompted by idle curiosity, they mean that Dun-Bradstreet has received or has reason to expect a call from a subscriber for a report. Local credit organizations likewise report to their subscribers but their data often is gathered from merchants, the credit departments of large stores, and court and property records. Whether a doctor knows it or not, he frequently is the subject of such reports. By reason of this fact, it is highly important from a business viewpoint that physicians maintain first-class credit status. This can be done only by payment of all bills when received and never delaying payment as much as 30 days. If semi-annual interest on a deed of trust note is not paid when due, the borrower's credit standing is thereby impaired. The doctor, in the payment of his financial obligations, is dealing with his business relations. If he is punctilious in making payment, his business standing will be enhanced.

A business principle oft-times violated or disregarded by physicians and others is that no paper writing, even though it be a mere memorandum, should be signed unless it is dated, and unless it is read and understood. It is better to be safe than sorry. The doctor who is stampeded into signing or who carelessly signs a lease, installment contract, insurance application, or an agreement with a collection agency, may be bringing a lot of trouble on himself and providing considerable business for his lawyer. Before entering into a partnership agreement, the physicians who are to be associated should weigh with care the fact that a partner is liable for the acts of his co-partners within the scope of the partnership business. One who contemplates partnership should first satisfy himself as to the professional ability and the personal integrity of his associate or associates.

The doctor's business relations with his professional assistants are more extensive than the mere payment to such helpers for their services. In engaging assistants and retaining them, the doctor must have in mind that the law holds him answerable for what they do and for what they omit doing in the course of their employment.

A business system, simple in itself, but sometimes proving of advantage to the man who adopts it, is the practice of saving all receipted bills and cancelled checks until after the statute of limitations has run. In this District, the statutory period is 3 years from the time that the right of action accrued. After the lapse of 3 years from their date receipted bills and cancelled checks may safely be destroyed. It is economical that this be done, for worthless files occupy space, and space in office buildings entails an expense for every day that it is occupied.

The totals of professional receipts and disbursements should be compared each year with those of immediately preceding years. If such examination discloses that on approximately the same income the expenditures have been greater in one year, the doctor must recognize this as a warning that probably his overhead is consuming too great a percentage of income. Here again he is in close contact with his business relations, and is confronted with a business condition which demands that he ascertain the facts and having done so, that he proceed to the best of his ability to correct the situation. Nor is it sufficient for him to say that he does not know what course to take. He must know that there are persons and agencies—maybe increasingly difficult to find—competent to give disinterested advice on business matters. In such circumstances, it often happens that a certified public accountant renders valuable service. The work of these men usually is confined to auditing and accounting, but in the performance of this duty they become acquainted with the reasons which have led to success and those which have courted disaster.

In building up his assets and creating an estate, the average physician encounters business problems which may appear to be formidable, but which, nevertheless, can be successfully handled by the application of a few simple business principles.

Paramount among these is the truism that no one should invest in speculative securities until after he has set aside a fair competency in high-grade, gilt-edged securities. It is not necessary that funds be accumulated in order that such purchases be made in large amounts, for securities of this class are available in denominations of $100.00 and less. The question that staggers the investor is how to ascertain what is a high-grade investment. The doctor recalls that only a few years ago banks, with great unanimity, were displaying placards cautioning customers to "Investigate before Investing." Also, the doctor recalls that many persons who read those signs after taking counsel with their bankers bought bonds of South American countries and other securities which have greatly shrunken in value. The fault was not in the slogan, it was in the fact that investigation was not made. It does not constitute investigation to accept the advice of one who recommends a security which he or his institution has for sale. Such advice lacks the essential element of disinterestedness. Inquiry should be pursued until disinterested opinion is obtained.

The best course for the doctor to follow in undertaking to determine as to the trustworthiness of a security is to ascertain whether it is of a character approved for trust funds. The laws of many States prescribe what securities are proper for trust fund investments.

In the District of Columbia this is covered by a rule of the District Supreme Court. Under this rule, the Court authorizes only investments made in first deed of trust notes and in certain bonds. As to notes, the total amount of the first trust must not exceed 60 per cent of the fair value of productive property, the improvements being dwelling, store or office buildings, or 50 per cent of improved farm property, or 30 per cent of unproductive or manufacturing property. Approved bonds cover the wide range of United States, Federal Land Bank, State, County, Municipal, Railroad and Street Railway bonds. However, as to bonds, there are certain conditions prescribed at length in the rule and which are applicable to all issues save those of the United States, States and Federal Land Banks.

The investor should avoid purchasing a deed of trust note which is part of a series all secured by first lien unless he is financially able—in event of foreclosure—to take over the property for an amount equal to the entire loan. For instance, while it may be quite feasible for the doctor who holds a $2,000 note, part of a total first trust of $10,000, to buy in the property it would likely be impossible for him to do so if his $2,000 note should be part of a total issue of $500,000. One who purchases deed of trust notes must bear in mind that the property on which the notes are secured may be sold by the District of Columbia if taxes become in default. To guard against this, the note holder, or someone in whom he has implicit confidence, should examine the list of properties advertised to be sold for taxes, which is published in one of the daily newspapers in December of each year

The rule of the District Supreme Court to which reference has just been made, has a further provision for the protection of trust funds which an individual should not overlook in the investment of his own funds. This is the prohibition against investing more than 40 per cent of any estate in any one security, except United States bonds. This is the application of the very sound principle that every estate should have a diversification of its investments. Two illustrations may be given of the necessity for this safeguard. Persons whose funds were invested in first trust notes have in the past few years found it obligatory, to protect themselves, to take over large quantities of real estate; while those who held bank stock have, in numerous instances, been called on to pay assessments. These conditions have been productive of appalling results to those whose holdings were not diversified.

It is prudent not to have a too miscellaneous holding of registered bonds and stock of corporations organized in States other than the one in which the holder resides. In the event of the death of the holder, his estate will be under the necessity of obtaining the consent of State authorities and oft-times paying substantial State transfer taxes, before such securities can be negotiated.

There is no express provision of law in the District of Columbia under which a widow or other dependents are entitled to maintenance from the funds of an estate during the year that the estate is in course of administration. Disbursements for this purpose are made by the executor or administrator on his own responsibility and liability, or in some circumstances under an order of Court providing that the recipient first file a refunding or forthcoming bond. It is a prudent business practice in order to relieve the wife from the embarrassment of being without funds on the husband's death, for the husband to have one or more of his bank accounts in the names of himself and wife or the survivor. Such bank accounts become the sole property of the survivor and are not in any respect involved in the estate of the first decedent.

It should also be borne in mind that in the District of Columbia real estate and personal property such as certificates of stock can be held by husband and wife jointly with right of survivorship which means that upon the death of either the property so held belongs solely to the surviving spouse. Other property belonging to a decedent passes either under his will or according to the statutes of descent and distribution. It behooves physicians to make wills, and to look over such papers at intervals of from 1 to 3 years to determine whether in the light of changed conditions they should be rewritten or modified.

In the matter of prospective taxes, the doctor should have in mind that life insurance payable to a member or members of his family in amount not exceeding $40,000 is an allowable deduction in computing the estate tax, commonly called inheritance tax.

One business relation that always is ready to cause trouble for the doctor is the malpractice suit. There is no possible precaution that can be taken to absolutely prevent the filing of such suits, unless it is to settle any and all claims before proceedings are instituted, and this course is extremely inadvisable. The wise physician will recognize his vulnerability and the lurking peril that is involved in law suits, and will endeavor to safeguard himself by carrying an adequate liability insurance policy and availing himself of the medical defense assistance offered by this Society. Parenthetically, it may be noted that the medical man against whom a malpractice suit is brought may derive a small degree of solace in reflecting on the fact that suits of this nature are not filed against men from whom it is believed no recovery can be enforced. Thus, by the very instituting of a proceeding the defendant physician is damned with faint praise.

The doctor's business relations, as this paper has endeavored to point out, must be taken into his household and live with him. He must be in constant personal contact with them. He may try to avoid them, even to treat them with indifference, but he will be brought to realize sooner or later that such a course will only make it more difficult to deal with them.

Law and the Doctor.— . . . the physician may or may not accept a case when called. Once having accepted it, he binds himself to render all the necessary care so long as the case requires attention, or until the patient discharges him, or until he withdraws from the case. What is a proper withdrawal . . . such a withdrawal, by which, upon notice being given to the patient he will be enabled to secure other medical attendance. To fail so to do after having accepted a case constitutes an abandonment of the case, for which the physician or surgeon is liable in damages. In fact, in one jurisdiction the Court has gone so far as to hold that the substitution of a much less experienced physician for the physician engaged, without notifying the patient so as to allow him to engage a physician of equal experience and ability with the one first engaged, constitutes such an abandonment as will allow the patient to recover in damages.

A physician whose custom it is to see patients only in his office, has been held justified in refusing to treat patients not coming to his office, where the patient had knowledge of such custom before engaging the physician and was so advised by the physician. It is apparent, however, that the physician who confines his practice to office work entirely may not rely merely on such custom, but must see to it that such custom has been brought to the attention of the patient and is known to him prior to the engagement of the physician.

The measure of damages against a physician who abandons a case, is, of course, determined by the ill effects naturally and forseeably consequent and attendant upon such abandonment and includes increased pain and suffering which may result from such abandonment.

Records. "To urge the keeping of accurate case records is an old story, yet the protection afforded by detailed office records is often lost sight of by the busy doctor. But time given to this detail is far better spent than time given to defending a lawsuit and disclosing to the public a slovenly practice. You need not make this burdensome, but be meticulous in jotting down each date with a note on the nature of each service rendered, sufficient to refresh your memory at some later time should it become necessary." —*Extract from article by* GREGORY GRAMLING, *The Milwaukee Medical Times May, 1935, p. 35.*

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA
Editorial Office, 1718 M Street

EDITORIAL STAFF
Coursen B. Conklin, A.M., M.D., *Managing Editor*
Wallace M. Yater, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year — Single Copies, 25¢

MEDICAL ECONOMICS

The Coördination of Resources for Medical Care in the District of Columbia

Wallace M. Yater, M.D.,
Chairman, Committee on Coördination of Resources for Medical Care, Medical Society of the District of Columbia,
and
Ross Garrett,
Health Secretary, Council of Social Agencies, Washington, D. C.

Before the present economic depression the standards of medical practice in the United States were the highest in the world. There were ample facilities for medical care, and everyone received that care when he applied for it, no matter what his economic status. The same facilities still exist and the same services are still available during this depression as before. The only difference is that more people are unable to pay anything for these facilities and services and more people are unable to pay cash for them. Hence, the clamor for sickness insurance.

The Evils of Sickness Insurance

Because of this clamor it behooves all thinking people to consider two questions: (1) Would insurance such as has been in force in Europe and such as is being advocated in this country be feasible and solve the problem; or (2) Can the problem be solved merely by a coördination and reorganization of already existing resources? That sickness insurance is not the solution is readily seen if one studies the results of such insurance as it has existed in Germany for over 50 years, during which time the best minds of Germany have attempted to perfect it. The evils of such insurance are quite apparent in the following quotations from a masterly article on the subject by Gustav Hartz, eminent German labor economist.

> "The unevenness in the business level, the seasons, holidays, a change of work, failing health and many other things contribute to bring about a noticeable change in morbidity. Since the sickness insurance has been in effect, the average number of days of incapacity to work owing to ill-health has risen from 5½ to 28 days, although health in general has considerably improved. In the strict sense of the word, sickness insurance is no insurance. From a technical and mathematical standpoint it is also quite unsettled in view of the moral hazard.
>
> This is clearly seen when considering that the individual insurance case, whether due to illness or unemployment, can be willfully caused or extended. Where is the border line between illness and health, between mere indisposition and illness, between dread of getting ill and bluff? And if the insured person is really ill, where is the border line between ability or disability to work? How can the duration of an illness be fixed?
>
> Illness is the most incalculable risk in existence.
>
> Even the doctor is mostly, or at least frequently, unable to diagnose correctly and to distinguish pretenders and hypochondriacs from really sick people, or rather to tell whether a man is fit to work or not."
>
> "Dread of illness obsesses most people, and this has been pressed into a system 'illness made easy' by which the will to be well is strangled. The doctor is consulted a dozen times where once would be sufficient—the insurance pays. The prescribing of medicine, bandages, etc., is desired. When they have been obtained they lie about until they are no longer fit to be used and must be thrown away—the insurance pays. Besides, it is nice to get something in return for the premiums paid year in and year out. Excessive 'overdoctoring' is the result, and fear of illness shakes the will for recovery—the best aid to health. Pretenders and hypochondriacs are bred, and the use of medicine becomes excessive. The advertising of certain remedies and cures created a medicine craze. A few years ago it was ascertained that 4 times as much money was used for doctors' fees and medicines for 35,000,000 of people in insurance as for 30,000,000 of uninsured. This was stimulated unthinkingly by a desire to get insurance money. An actual run on the sickness insurance allowance set in.
>
> At first sight it seems improbable and paradoxical that a desire to obtain insurance money that scarcely amounts to half the sum of wages should arise. It appears impossible that someone should, unless compelled by illness, forfeit his wages to get an allowance of half the amount. Unfortunately,

life does not run a straight course between health, working ability, working possibilities on one hand, and illness and disability on the other, nor do people's minds and actions.

In millions of cases, for example, when wages are being decreased, when work is scarce and work hours in consequence shortened, when there are fewer shifts, many holidays, work restrictions at certain seasons, outdoor work in frosty weather, 50 per cent of the wages is welcome. One objects to the work he is given, another does not feel like working, a third's time is taken up by some family matter for which he would have to take leave of absence and forfeit his pay. In such cases the sickness insurance comes in handy. Besides this, there is also deceitful trickery. Fictitious contracts are made, doctors are induced to prescribe medicine, and instead of the medicine, toilet soap and scent, etc., are handed out by the pharmacies.

How can this possibly be done, some ask? Those who consult doctors are supposed to be ill. That is all very well if the doctors were always able to detect whether the statements of the patients were correct. Often a diagnosis is impossible. He who would like to prove this should go to 10 doctors, complain of headache, pain in the limbs, rheumatism. All 10 will start a treatment for headache or rheumatism, without discovering that nothing whatever is the matter with the patient.

Besides that, all doctors are glad to get new patients, for do they not mean their livelihood?

Medical science has become a cheap article, and doctors have given up conscientious treatment. The genuine patient is neglected, is not given the necessary care.

The greater the mass consultations, the lower are the doctor's fees. The amounts paid to panel doctors for each single case are deplorable. They are, therefore, compelled to resort to mass practice.

The sickness insurance unrolls the entire problem of the medical man's existence. Mass demand compelled a limitation in the use of medicines. Doctors must not prescribe what they consider good for the patient, they only being allowed to give remedies entered in a book of medical regulations for insurance purposes.

The insured workman becomes a second-class patient."

"The genuine patient is justly indignant to find that the existence of his illness is doubted, and that he who has always paid his premiums regularly and has a right to demand conscientious attendance, is considered a cheat.

This system, together with the rest of the bureaucratic apparatus, has wedged itself between doctor and patient, completely destroying the patient's confidence in his physician, which greatly retards all recovery."

In considering the second question—Can the problem be solved merely by a coördination and reorganization of already existing elements—which would certainly be far preferable to the sorry state of Germany with sickness insurance, three major situations must be surveyed: (1) The care of indigents, (2) the cost of hospitalization and nursing service for non-indigents, especially the small-wage earners, and (3) the payment for medical services by small-wage earners.

THE MEDICAL CARE OF INDIGENTS

Regarding the care of indigents, two problems exist: (1) Hospitalization, if and when necessary, and (2) professional care. There already exist throughout the land, state, county and municipal hospitals and dispensaries which are designed to provide medical facilities for the indigent sick. These hospitals, with exceptions in certain communities, are still ample to house the indigent sick of their communities. These institutions should be maintained by the communities whose indigent sick they are designed for, either by taxation or donation. The problem is a community—state, county or municipal—problem and not a federal one. The resources of most communities, even in these trying times, are sufficient to support these institutions and the necessary nursing service.

The medical profession has always given service ungrudgingly to the indigent sick, even though its members also pay taxes and make monetary donations. The value of such free services is enormous. Rather than have some form of sickness insurance like those being proposed by politicians, the medical profession would much prefer to continue to donate its services to the indigent sick. However, inasmuch as this is quite a burden on the profession, and physicians must have an income for livelihood, it would seem only just that each community should provide funds for medical services for its indigent sick on a scale-down basis, at perhaps one-half of the fee schedule for small-wage earners.

HOSPITALIZATION AND NURSING SERVICE FOR NON-INDIGENTS

Probably the real burden on the small-wage earner in times of sickness is the expense of hospitalization and nursing service. This is undoubtedly where the "high cost of medical care" comes from. Perhaps even more important than the cost is the fact that these expenses usually must be met by cash payments at the time of illness. If some method could be devised whereby these expenses could be met on the deferred payment plan there would be no more talk about the "high cost of medical care." It is not unreasonable to believe that some method can be devised. One method being advocated nowadays to provide hospitalization without hardship is "group hospitalization," by means of which individuals paying a small amount regularly each month to a group of hospitals in a community may obtain hospitalization for a period of time (in the District of Columbia, 3 weeks) without additional expense. This is not sickness insurance. Participators in this plan are not paying for medical services but for medical facilities, two entirely different things. However, there are some objections to this plan, since usually only the wage earner himself and not his dependents is eligible to participate, and participants are apt to abuse their privilege by desiring hospitalization when it may not be necessary or by demanding hospitalization for the full period of time allowed when a shorter period might be sufficient. These abuses of course increase the cost of such a plan.

In addition to the "group hospitalization" plan it will be possible to effect some arrangement for deferred payment of hospital bills through coöperation of the hospitals with a medical-dental service bureau, which is to be discussed later.

Payment for special nursing services and drugs might also be made when necessary by coöperation of nurses and pharmacists with this medical-dental service bureau.

The Payment for Medical Services by Small-wage Earners

It is the small-wage earners who have difficulty in paying for medical services as they do also for medical facilities (hospitalization). Unfortunately, the public as individuals has never planned for sickness nor the expense entailed by it, and frequently, therefore, many are unprepared for it when it comes. Many, therefore, have to pay their bills for medical services over a period of time following the illness. Unpreparedness has made the expense of illness appear to be a greater burden than it is. It is not what physicians charge these people but the unpreparedness which constitutes the burden. Physicians have always claimed the right to charge fees commensurate with their patients' abilities to pay for them, since the time, kind and duration of illnesses are unpredictable and since there is great variation in patients' abilities to pay. Physicians on the whole are reasonable and lenient, as well as charitable. But they must live, and to live costs money. If there existed a community business bureau with which small-wage earners could make arrangements to pay their sickness expenses on the deferred payment plan the burden of medical expense would be greatly lightened, since a small, regularly recurring indebtedness is always less morally depressing than a single large one. The business dealings between patients and their physicians have always been, with these people, desultory and obnoxious, since they are so foreign to the professional relationship. Furthermore, it is so remote from the physician's training and purpose in life to act in the capacity of a business man that it is difficult for him to make satisfactory arrangements for the payment of his services. He has not the time, the training nor the connections that make it possible for him properly to investigate the financial status of his patients and to help them determine how best and easiest they can meet their obligations. The patient, also, is diffident when his relationship with the physician changes from the professional to the business. He shrinks from disclosing his economic weakness and dislikes appearing to be ungrateful. Consequently, he frequently makes indefinite arrangements in good faith which are unsound according to his economic status; and the resulting defaulting engenders misunderstanding and loss of cordiality and frankness with the physician.

Expenses from sickness are frequently multiple. There may be several physicians involved (specialists, etc., as well as the family physician), dentists' fees, hospital charges, nurses' wages and pharmacists' bills. Also, other health hazards may occur unexpectedly, or the patient's economic status may change. One physician could hardly make adjustments for all of these features, but a business bureau planned for this purpose could do so readily, and the patient would have only one unit with which to deal. All involved would get fair consideration. All debtors would get their pro rata share, no one would be exploited, and the patient would be saved embarrassment and anxiety.

Such a bureau has been set up in the District of Columbia by the physicians and dentists. All hospitals are now coöperating by allowing payment through the bureau subsequent to hospitalization. They receive their pro rata share of the money as it is paid by the patient and allow 10 per cent deduction by the bureau.

THE MEDICAL-DENTAL SERVICE BUREAU, INC.

(*a*) *How the Bureau Works*

The determination of the amount of the fee charged by the physician or dentist remains under the plan a direct agreement between the patient and the individual or individuals rendering professional services or providing facilities for those services. Whether the patient takes advantage of the service of the bureau depends upon whether the physician or dentist agrees to allow him to do so. In other words, it is the physician or dentist who sends the patient to the bureau with a card which gives the physician's or dentist's consent and which shows the amount of the bill and the services rendered to that date. When the patient or his representative appears at the bureau he is required to give all the data concerning his financial status, viz., his income, regular expenses and unusual expenses. From these data the bureau helps him to determine how much he can pay each pay-day on his bill or bills for medical or dental services. He is then expected to pay this amount regularly as long as the conditions exist under which he made the agreement. If other medical or dental bills accrue while he is still making payments on the original account, an adjustment is made so that all physicians or dentists who are involved receive their pro rata amount of the installments. Or if the patient's economic status changes so that he can pay on his account faster, larger installments are determined upon. If the patient's economic status changes in the reverse direction so that he can pay only a smaller installment or nothing at all, the amount of the individual installments is decreased or the whole amount cancelled. How the physician and dentist avoid total loss when the latter conditions comes about will be discussed later.

When the patient pays his installment the bureau deducts 10 per cent for expenses and to establish a sinking fund. No interest is charged the patient. The physician or dentist is paid each month his pro rata share of the amount collected for his bill less 10 per cent.

(*b*) *The Organization of the Bureau*

The bureau is incorporated in the State of Delaware as a non-profit organization without capital stock. It is governed by a Board of Directors consisting of 1 representative for each 100 active members and 1 extra representative for 50 or more active members beyond the last 100 members of each of the following societies: The Medical Society of the District of Columbia, the District of Columbia Dental Society, the Medico-Chirurgical Society (the Negro medical society), and the Robert T. Freeman Dental Society (the Negro dental society). The latter organization, having less than 50 active members, is represented by 1 director. These directors are appointed each year to begin service on the first day of January by the organizations represented in any manner of selection each society desires and serve for a period of 1 year, after which they must be reappointed. One director is appointed by the Hospital Superintendents' Association. The directors have general direction of the policies and running of the bureau according to the By-laws of the bureau. The services of the bureau are available to all active members of the four societies in good standing. The number of physicians and dentists who may use the bureau is, therefore, about 1,400.

(*c*) *Arbitration Boards*

Each of the four societies concerned appoints an arbitration board of its own composed of as many members as it desires. The duty of these boards is to maintain general supervision over fees charged by the members of their respective societies to patients using the bureau. Whether a definite fee schedule is used for patients in various income brackets is left to the discretion of each society and concerns only members of the society setting up the schedule. Each board appoints one of its members acting arbitrator for a certain period of time. This arbitrator maintains contact with the business manager of the bureau to determine whether members of his society are charging exorbitant fees. If the acting arbitrator cannot bring the member to agree that the fee is exorbitant he brings the matter before his arbitration board for consideration. Each arbitration board may meet regularly each month in advance of the meeting of the board of directors. The board of arbitrators, after hearing the statement of the member of its society who is supposedly charging exorbitant fees to the class of patients treated, may recommend that the member be withheld the privilege of making use of the bureau. All recommendations are subject to approval of the board of directors whose decision is final.

(*d*) *Personnel of the Bureau*

The bureau has a manager whose salary is $300 per month, and 1 stenographer-clerk whose salary is $125 per month. If and when the board of directors deem it advisable, upon recommendation of the manager, an additional clerk-bookkeeper shall be added, whose salary shall be $100 per month. Rental charge allowed shall be determined by circumstances, but should not exceed $100 per month at the start.

(*e*) *Location of the Bureau*

The bureau maintains offices in the same building as the Central Admitting Bureau, where it pays its pro rata share of the rent, telephone service, etc. The service is a supplementary part of the Central Admitting Bureau, inasmuch as it is rendering an altruistic service to the community along the same lines. The two bureaus are mutually helpful.

(*f*) *Financing of the Bureau*

The expenses of the bureau are met from the treasuries of the four societies, pro rated according to the number of active members, until such time as a surplus exists, after which the monies expended by the societies shall be refunded without interest. It is estimated that $2,000 will be sufficient to finance the bureau until it becomes self-sustaining and that this amount can be returned within the first year.

(*g*) *The Sinking Fund*

If the bureau is used sufficiently by the members of the societies a substantial sinking fund should accrue. Since this is a non-profit corporation this sinking fund could be used for one or both of two purposes. It might be used to reduce the percentage deducted for expenses; or it might be used to settle the accounts of those patients who through adversity become unable to continue payments. The latter plan will probably be adopted.

(*h*) *Unworthy Delinquents*

The bureau is authorized to sue those individuals who cease to pay their installments although still able to do so. It proposes to use leniency, however, in cases of those who temporarily become unable to pay but who will resume payment as soon as they again become able.

(*i*) *Publicity*

The coöperation of business men, federal employees and others is being obtained by explaining the purpose and advantages of the bureau to various representative organizations. Experience of similar bureaus elsewhere has shown that both employers and employees soon become very favorably disposed to such a plan.

(*j*) *Advantages of the Plan*

1. The plan relieves the physician or dentist of the time-consuming business of getting the necessary data to formulate a plan of payment for the patient. It puts the economic aspect of medical and dental practice on a business-like basis, relieving the professional man of the unpleasant relationship with patients.
2. The patient, dealing with a business organization and knowing that he has signed a contract for payment, will be much more apt to pay regularly on his account.
3. The patient learns how to budget the expense caused by illness or the prevention of illness, and when another illness arises will be familiar with the plan.
4. The doctor is much more apt to keep his clientele intact since the patient not being in default will not find it necessary to go to other physicians or dentists for future illnesses.
5. Patients are permitted to maintain their self-respect, since there is little likelihood of defaulting carelessly. Also, they are much more willing to pay a small amount regularly to a business bureau than they are to a professional man since there is a tendency in the latter instance to consider a small payment demeaning.
6. No interest is charged the patient and, therefore, he has reason to understand that he is being rendered a service and not being exploited.
7. It is more likely that employers in general will coöperate in helping their employees fulfil their contracts for the payment of medical and dental bills.
8. If the professions get squarely behind this plan they will go a long way to demonstrate the lack of necessity for health insurance such as is being agitated at the present time.

THE MEDICAL ECONOMIC SECURITY ADMINISTRATION FOR THE DISTRICT OF COLUMBIA

Coördination of medical resources in the District of Columbia is being brought about rapidly. It is believed that a similar coördination may be effected in most all parts of the country, perhaps with municipalities and counties as the community units. As with all coordination there must be a central clearing house. This clearing house in the District of Columbia is called the Medical Economic Security Administration for the District of Columbia, located in the Health Security Building at Eighth and Eye Streets, N.W. (Diagram 1). It began to function on January 10, 1935, having been created (as the Central Admitting Bureau for Hospitals) by the Community Chest upon recommendation of the Medical Society of the District of Columbia. There are 3 bureaus coördinated with the Administration, all located in the same building, but with separate waiting rooms: The Permit Bureau of the Board of Public Welfare, the Central Admitting Bureau for Hospitals, and the Medical-Dental Service Bureau, Inc. Patients or those responsible for them may apply directly to the Administration, but most of them are sent by hospital dispensaries, practicing physicians and dentists, and public agencies. Business firms, employers and unions are also beginning to refer patients to the Administration for disposition. Private agencies, public schools and the Health Department are being shown how they may do likewise. The 9 hospitals (constituting most of those in the District of Columbia) affiliated with the Community Chest have agreed to send all individuals applying for free dispensary service to the Administration for investigation of their eligibility to receive such service.

The hub of the Administration is a group of 8 receptionists, record clerks, interviewers, investigators, clearance operators and adjustors, all skilled in the type of work they do. They have ready access to all sources of information about persons residing in the District of Columbia. There is also direct connection with the Social Service Registry. These workers, after investigation, classify patients into 3 groups: (1) The indigent, who can pay nothing for medical facilities and services; (2) the semi-indigent, who can pay a little for hospital facilities but not for medical services; and (3) those who can pay reasonable fees for medical facilities and services on the deferred payment plan.

Members of the first group, the indigent, who are ambulatory and do not need hospitalization, are referred to the Central Admitting Bureau for Hospitals. This bureau gives a permit card which allows the patient to attend the outpatient clinic of any of the 9 Community Chest hospitals selected. The Community Chest pays the hospital selected 50 cents for each visit of the patient. It is understood that this fee is paid for facilities and not for the medical services, which are rendered free by the medical staff. The admission cards are given for a definite period of time, depending upon the individual needs and the economic prospects, and must be renewed at the bureau periodically. Indigent persons known to have or suspected of having tuberculosis or syphilis are referred by the Central Admitting Bureau to the Permit Bureau of the Board of Public Welfare, which gives them permits to attend 1 of the 2 dispensaries maintained by the Government of the District of Columbia for the treatment of these diseases.

If indigent individuals require hospitalization, they also are referred to the Permit Bureau of the Board of Public Welfare, which gives permits for hospitalization in the municipal and contract hospitals of the District of Columbia. These hospitals take only indigent patients (wards of the state).

Members of the second group, the semi-indigent, who can pay a little something for necessary hospitalization but nothing for medical services, are dealt with by the Central Admitting Bureau, which determines how much of the $4.00 per day paid the community hospital for keeping the patient shall be paid by the patient. The balance is paid from Community Chest funds set aside for this purpose ($300,000 annually). The collection of the portion paid by the patient is a function of the Medical-Dental Service Bureau, which deducts 10 per cent for expenses. The medical services are rendered free to these patients by the medical staff of the hospital.

Members of the third group, those who can pay reasonable fees for medical facilities and services on the deferred payment plan, are referred to the Medical-Dental Service Bureau, which requests them to get authorization to use the Bureau from their private physician if they have one, or if they have no physician, it gives them a list of reputable physicians from whom they may choose. The functions of this bureau have already been explained.

Coördination of the Bureaus of the Administration

An alliance has been entered into by the main organizations concerned with the care of the sick, the object of which is to assure everyone of proper medical care by coördinating the community resources for medical care. These organizations are the organized medical profession of the District of Columbia, the organized dental profession of the District of Columbia, the Hospital Superintendents' Association, the Community Chest, the Council of Social Agencies, the Public at Large and the 3 Bureaus of the Medical Economic Security Administration. Each of these bodies has a representative on the Coördinating Board of the Administration, as follows: The Chairman of the Committee on Medical Economics of the Medical Society of the District of Columbia, the Chairman of the Economics Committee of the District of Columbia Dental Society, the President of the Hospital Superintendents' Association, the Chairman of the Hospital Subcommittee of the Budget

Committee of the Community Chest, the Chairman of the Health Committee of the Council of Social Agencies, the Health Officer of the District of Columbia (representing the Public at Large), the Chairman of the Supervising Committee of the Central Admitting Bureau for Hospitals, the Chairman of the Medical Service Committee of the Board of Public Welfare, and the President of the Medical-Dental Service Bureau, Inc. (Diagram 2). The duties of this Board are to select a coördinator (who must be acceptable to the governing bodies of the bureaus of the Administration) and to direct his activities in solving problems requiring coordination between bureaus. The coördinator at present is the Health Secretary of the Council of Social Agencies, who is loaned by the Council to do this work.

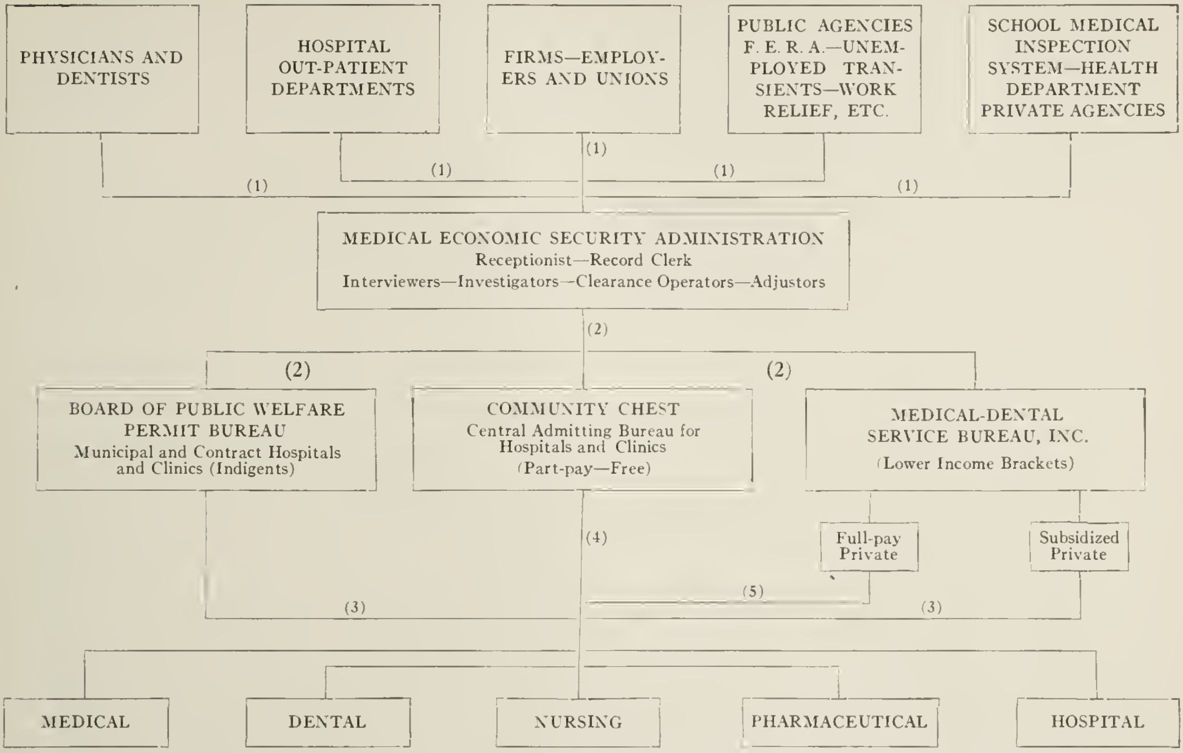
Each bureau of the Administration has its own governing body and administrative officer. The Central Admitting Bureau for Hospitals is governed by a Supervising Committee of 14, composed of 8 physicians selected by the Medical Society of the District of Columbia, a dentist selected by the District of Columbia Dental Society, a representative of the Hospital Superintendents' Association, and 4 members of the Executive Committee of the Community Chest. This bureau is presided over by a director. The Permit Bureau of the Board of Public Welfare is governed by the Medical Service Committee of the Board of Public Welfare. It has a director. The Medical-Dental Service Bureau, Inc., has a Board of Directors (as already noted) and a manager.

COMMENT

The project outlined above, since still in the developmental period, naturally has "rough spots" that must be "ironed out," but experience is showing how this can be done. None of the problems are insurmountable. Although other communities are developing similar plans, this is believed to be the only one which takes in the whole picture of medical economics. A very important feature is that the project is entirely self-supporting, entailing no additional expense to taxpayers or the donating public. It appears that by the end of the first 4 months of its existence the expense of maintaining the Central Admitting Bureau for the year will have been paid by the elimination of the applicants for aid from the Community Chest who could afford to defray their expenses without such aid. After 2 months of existence the Medical-Dental Service Bureau is self-supporting, and the volume of business has been growing rapidly. Undoubtedly within the next 2 months the corporation will be out of debt. The Permit Bureau of the Board of Public Welfare is running on its appropriation from Congress, as usual.

Everyone in the District of Columbia is getting adequate medical care. Physicians, however, are still rendering free service to the indigent and semi-indigent, a condition which, while not entirely just, is the least objectionable feature of the project and is infinitely superior to sickness insurance.

For further information regarding details of the Medical Economic Security Administration for the District of Columbia, write Mr. Ross Garrett, Health Security Building, Eighth and Eye Streets, N.W., Washington, D. C.


PHYSICIANS AND DENTISTS
HOSPITAL OUT-PATIENT DEPARTMENTS
FIRMS—EMPLOYERS AND UNIONS
PUBLIC AGENCIES F. E. R. A.—UNEMPLOYED TRANSIENTS—WORK RELIEF, ETC.
SCHOOL MEDICAL INSPECTION SYSTEM—HEALTH DEPARTMENT PRIVATE AGENCIES
(1)
(1)
(1)
(1)
(1)
MEDICAL ECONOMIC SECURITY ADMINISTRATION
Receptionist—Record Clerk
Interviewers—Investigators—Clearance Operators—Adjustors
(2)
(2)
(2)
BOARD OF PUBLIC WELFARE PERMIT BUREAU
Municipal and Contract Hospitals and Clinics (Indigents)
COMMUNITY CHEST
Central Admitting Bureau for Hospitals and Clinics
(Part-pay—Free)
MEDICAL-DENTAL SERVICE BUREAU, INC.
(Lower Income Brackets)
(4)
Full-pay Private
Subsidized Private
(5)
(3)
(3)
MEDICAL
DENTAL
NURSING
PHARMACEUTICAL
HOSPITAL

(1) Referral; (2) Confirmed Socio-economic Picture; (3) Permit; (4) Hospital Admission Slip and/or Clinic Card; (5) Open Budget Account

Diagram 1. Plan of the Medical Economic Security Administration for the District of Columbia, the Administrative Organization of the District of Columbia Alliance for the Coördination of Community Resources for Medical Care

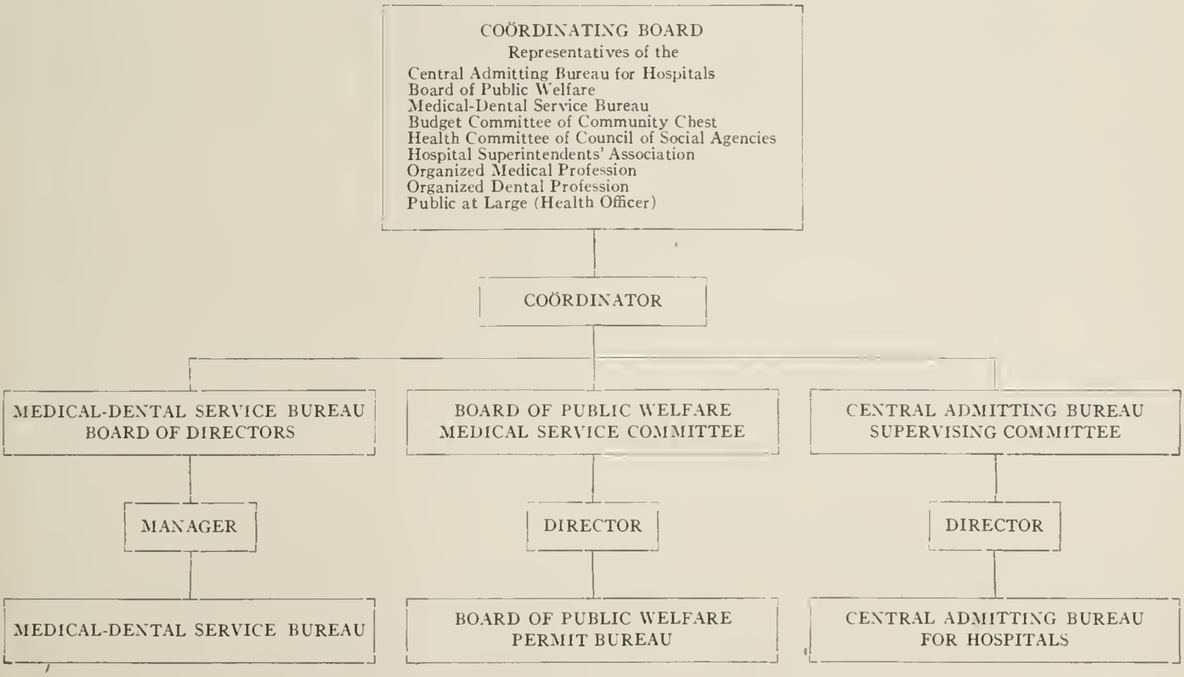

COÖRDINATING BOARD
Representatives of the
Central Admitting Bureau for Hospitals
Board of Public Welfare
Medical-Dental Service Bureau
Budget Committee of Community Chest
Health Committee of Council of Social Agencies
Hospital Superintendents' Association
Organized Medical Profession
Organized Dental Profession
Public at Large (Health Officer)
COÖRDINATOR
MEDICAL-DENTAL SERVICE BUREAU BOARD OF DIRECTORS
BOARD OF PUBLIC WELFARE MEDICAL SERVICE COMMITTEE
CENTRAL ADMITTING BUREAU SUPERVISING COMMITTEE
MANAGER
DIRECTOR
DIRECTOR
MEDICAL-DENTAL SERVICE BUREAU
BOARD OF PUBLIC WELFARE PERMIT BUREAU
CENTRAL ADMITTING BUREAU FOR HOSPITALS

Diagram 2. Coördination of the Medical Economic Security Administration for the District of Columbia

EXTRACTS FROM PRESIDENT A. B. BENNETT'S ANNUAL ADDRESS*

I wish that every member could take his turn as President in order that he might see as I have seen this year the whole machine in operation. It has been an inspiration to me, because we really have a wonderful Society. I have never witnessed a more splendid response on the part of our members for service to the Society—service that meant work and time and sacrifice with the only reward a consciousness of a duty to the Society well done. . . .

Full-time Executive Secretary

. . . I would like to comment on a suggestion made by some of our outstanding members. This suggestion is that the work of the Society has become so great and with so many diverse interests that the Society should have a highly paid full-time Executive Secretary who could attend to all of these matters now attended to by our committees. I will grant there might be an improved efficiency but I doubt if that would offset the good that comes from work done for the Society by its members. Not only is the member benefited in breadth of outlook by unselfishly performing a task for his Society and his brother physicians, but I believe also the audience the Society receives through his personal efforts is more sympathetic if he appears as a member of our Society contributing his time and effort unselfishly for a cause than if we attempt to further a cause by having ourselves represented by a full-time paid executive secretary to whom the work in hand is just a part of his job. This is a large Society located in a small geographic territory and from my vantage point I feel certain that we have great numbers of able men to do the work and by a proper division of labor it can all be accomplished by ourselves. Making each year bigger and better than the year before and that natural desire to keep up with the Jones' leads inevitably to an extravagance of doubtful value and a poor return. Maybe I am too old-fashioned and too conservative but I do believe in building slowly and well. . . .

Woman's Auxiliary

I believe that the Auxiliary forms another link to help bind us more closely together. The friendly and personal contacts made by the womenfolk of our members engenders a still greater understanding among us all, and in addition they pursue many useful and helpful programs for worthwhile charities in our community. I sincerely hope the membership of the Auxiliary will increase in order that there will be a proportionate gain in the good they are doing. . . .

Relationship of Physician to Patient

In recent decades the Schools of Medicine have unquestionably produced physicians better trained in the difficult and scientific aides of medicine. Physical and laboratory examinations are stressed, history taking and records are fully kept and filed. As he enters practice the natural ambition of a young physician is to become a Fellow of the American College of Physicians or Surgeons, and to gain membership he is required to submit numbers of case histories. This stresses again in the young physician, laboratory examinations, X-ray findings, daily records and case histories carefully filed away. Might it not be possible that this perfectly correct teaching could become so paramount in his mind that each patient becomes to him just another subject for one more case record for the subsequent compiling of some interesting statistics? When this method is obvious to the patient the reaction in many instances is negative. The reaction is negative because we have failed to keep the patient in the forefront as a suffering fellow human being in need of help for his worry and anxiety, as well as for the pain and affliction, and sensitive in the extreme to the apparent interest of the physician in the part itself which seems to the patient to be the source of his trouble. To the patient his ailment is a personal matter and it is the part of wisdom for the physician to undertake the cure of that ailment as a personal matter. We must approach each sufferer in such a manner that he will feel assured of our personal interest in his distress and our understanding of his financial resources and even in this day of necessary specialism we should see to it that the patient is properly cared for by some man of medicine. I heartily support the thesis that there is no action performed to heal the sick that is beneath the dignity of the physician to do; from pulse taking to massage, from enemas to bed baths and from surgery to the care of calloused feet. . . .

Ethics

I am a little hesitant to speak of the next subject that comes to my mind, but in these times of change—when the old seems headed for the discard and the new is being pushed ahead with the zeal of fanaticism—I cannot pass by this opportunity to reaffirm an abiding faith in the ethics of our profession. I wish that every member would again read, word by word, that copy of the ethics of the American Medical Association which is printed in our Constitution and By-laws. We should keep those standards ever uppermost, for without ethics there would be chaos. The fundamental reason which makes it possible for us to have this Society, to meet in friendly groups and hear and discuss medical papers, to sit happily side by side at dinners and meetings, is that we have faith in the ethical standard of our fellow-members and they have the same faith in us. And the Society is our only court of ethical justice. It is here and only here that one can expose the unethical practices of another and have the error corrected or punished. . . .

---

* Presented before the Society, March 20, 1935.

HEALTH INSURANCE

. . . The masses today upon whom we must depend probably think of medicine as a splendid institution instead of the medical ministrations of their personal friends, the doctor. To win back that loyal personal relationship between ourselves and the masses is our own task. Its cost will be measured in friendliness, kindliness and the appearance of personal interest in our relations with every sick human being we are called upon to treat. The advocates of health insurance insist that the right of choice will be maintained. This is either a sop thrown into the lap of organized medicine to quiet them on that point or they really think that such could be the case. But it stands to reason, and the experiences in other countries have shown, that in the regimentation of such a service the right of choice passes from the picture and with it also disappears a right of equal value but not yet appreciated by the people—their right to change. . . . It is difficult for me to understand why there is this effort to establish health insurance when the acid test of experience has already been made in other countries and the results are known. In Germany it is called a Frankenstein, a great political whip, and the cost to the worker has risen from 1½ per cent to 20 per cent of his daily wage. In England a health insurance practice has become a definite financial asset. It is bought, sold and mortgaged, and is today being bought and operated by lay organizations that hire the doctor to do the work. Imagine the kind of care those people are receiving! I hope these United States will escape this experiment and the people be spared the price they would have to pay. . . .

. . . The practice of medicine, can be saved. We must cease to be modest men of medicine. We must become a militant force; making ourselves felt in matters of public opinion; ever ready to reveal with facts and figures the fallacies, dangers and pitfalls of proposed measures for medical care, and by every fair means recapturing that direct personal contact with each and every sick and suffering person who comes under our care.

THE DISTRICT OF COLUMBIA PLAN

If a change becomes inevitable and we have the elasticity of youth in our minds we will become adjusted and fit ourselves into the new scheme, whatever it may be. I believe that we will go much farther if we are a little pliant instead of ever-resisting; if we remain open-minded and sympathetic instead of obstinate and indifferent; and if we willingly lend our council and advice instead of remaining aloof and out of the picture. I am in full accord with every effort of organized medicine to prevent, or to postpone, or to modify these threatened changes. I am proud and happy that this year our Society took a leadership position in the establishment of the Central Admitting Bureau and the Medical-Dental Service Bureau. We have shown thereby that we can take care of the present situation and adjust the practice of medicine to the times and to the tendencies of the people, and left alone we will see to it that the people of all classes will have proper medical care no matter what their resources. This example which we have established will be used in other communities and will be presented as an argument against the adoption of laws for socialized medicine. Yet in times like these, when the test of political leadership seems to depend upon the amount of so-called social security that can be authorized by legislation and with the variety of needs that are now being provided, it will be nothing less than a miracle if medical care is left undisturbed. . . .

FUTURITY

The new day which has dawned and upon which some of us look with anxiety and apprehension and from which there seems to be no turning back should have no fears for the true physician. The inspiration which started us to study medicine and the hopes that carried us through those years of training were based on an ideal that some day we would make our lives worth while by healing the sick. He must be the saddest of men who finds himself practicing medicine and who is not happy in the work of healing the sick; to whom disease is not a challenge; who does not receive his greatest recompense from the comfort he gives a suffering fellow-being and who fails to feel a thrill of satisfaction on witnessing the restoration of an afflicted one to useful health. To the real physician, then, the new day can bring no dread, for the sick will always be with us. The problems of disease will continue to be a fascinating study and no system of human management can leave out of its provisions the man of medicine. . . .

. . . Although I do specialize in one of the limited fields of medicine I have never failed to gain something from every meeting I have attended. To have attended these meetings and to have been an eye witness and listener to the advances in medical and surgical skill has been an inspiring experience. . . . I wish I were a prophet and could see the outcome of the present trends, but the veil is too thick to pierce as yet. Of one thing I do feel certain and that is the future of this Society. We will naturally be held by a common bond that will tighten and become stronger as the years pass on. We will be more and more in need of each other's help in the clarifying of medical problems and diseases. We will be in a stronger position if we continue to present a solid front, whether it be for or against a cause. Let us continue to stand by each other and to maintain the ideals of medicine in our Society, for it must never perish form the earth.

TRANSACTIONS OF THE SOCIETY

Stated Meeting, May 8, 1935

The following were duly elected to membership:

Active Members

William Heman Clements, 512 B Street, N.E.
Ronald Atmore Cox, 900 Seventeenth Street, N.W.
Emil J. C. Hildenbrand, 1746 K Street, N.W.
Fordyce A. H. Johnson, The Rochambeau
Joseph John McHale, 1726 Eye Street, N.W.
Manly Bronson Root, National Training School for Boys
Homer King Vann, 410 Cedar Street, N.W.
Clifton Robert Wallace, 5005 Illinois Avenue, N.W.
James Edwin Wissler, Garfield Memorial Hospital

Associate Member

James Wilbert Love, Alexandria, Va.

Applicants for membership to be voted on in November, 1935:

For Active Membership

Herman Eisenberg, George Washington University—1931
Harry Marshall Fletcher, Georgetown University—1932
Lee Bernard Gaffney, University of Pennsylvania—1929
Joseph James Greenlaw, Georgetown University—1924
Robert Howe Harmon, George Washington University—1929
Maurice J. Kossow, George Washington University—1931
Edward Patrick McLarney, Georgetown University—1933
Joseph Mahon Moore, Medical College of Virginia—1929
Roger O'Donnell, Jr., Columbia University—1931
Clyde Pinckney Reeves, George Washington University—1933
Richard B. Thibadeau, Georgetown University—1926
Carden F. Warner, Hahnemann Medical College—1904
David Louis Weinstein, George Washington University—1932

Newly Elected Officers and Elective Committee Members

To serve 1 year from July 1, 1935

Sterling Ruffin, President
John Minor, First Vice President
Fred R. Sanderson, Second Vice President
Coursen B. Conklin, Secretary-Treasurer

To serve 2 years from July 1, 1935

Henry C. Macatee, Delegate, American Medical Association
Arthur C. Christie, Alternate delegate, American Medical Association

Members of the Compensation, Contract and Industrial Medicine Committee:

W. Cabell Moore
J. Russell Verbrycke, Jr.

To serve 3 years from July 1, 1935

Members of the Executive Committee:

A. B. Bennett
William T. Gill, Jr.
Augustus C. Gray

Report of Program Committee

The Program Committee submits the following report for the year October, 1934, to May, 1935:

A total of 29 meetings were held, 8 of which were the stated business sessions. Of the remaining 21 meetings, 4 were joint meetings with the following organizations: The Washington Academy of Sciences, the Washington Urological Society, the Washington Heart Association, and the Baltimore City Medical Society in Baltimore at which we presented the program. Four programs were sponsored and furnished by the Sections on Internal Medicine; Ophthalmology and Otolaryngology; Neurology and Psychiatry; and Neoplastic Diseases. The Staff of Mount Alto Hospital presented a most interesting program.

Thirty-three active and associate members presented scientific papers before the Society, and 14 out-of-town guest speakers were brought to the Society either by the Sections or the Program Committee. This does not include the papers of the Annual Scientific Assembly.

Of the budget allowance of $100, there was expended $16.06 for the expenses of the speakers, leaving a balance of $83.94 on hand.

The committee wishes to express its appreciation of the active interest and coöperation of the members in aiding and furnishing papers, obtaining speakers and of the gratifying attendance with which it has supported the programs.

Arch L. Riddick, *Chairman*
Jacob Kotz
B. L. Hardin, Jr.
W. M. Ballinger
Harry F. Davies
PROGRAM COMMITTEE

Report of Committee on Public Health

This committee, with Dr. William H. Hough, chairman, has been most active through its subcommittees. Below are presented reports recently received:

SUBCOMMITTEE ON VENEREAL DISEASE

The committee, in making this report, in the presence of our new Health Officer, Dr. George C. Ruhland, sincerely wishes that it be considered essentially informative, constructively critical, and, we hope, a basis for a "new deal" in the venereal disease management in our community.

In view of the recent agitation by our General Health Committee for the more adequate care of tuberculosis in Washington, all of which we are entirely in accord, may we point out that the Health Department records show that in 1934 we had 5 new cases of syphilis in our city for every 2 new cases of tuberculosis. We further wish to draw to your attention that for every 100 cases who do not receive treatment at least 20 of them will die from syphilis, 23 of them will be definitely incapacitated, and the rest may "get-by," so to speak, and die from some other malady.

We shall discuss the venereal disease problem first from the standpoint of the clinics, dividing them into the municipal and the private. Under the municipal clinic, the first and largest of our clinics, is the Social Hygiene Clinic of the Health Department at 520 Eye Street, N. W., under the supervision of Dr. Lyle M. Mason. In this clinic there has been a steady increase in cases handled, as follows:

	New Cases	*Total Attendance*
1929	2,554	18,925
1930	3,342	23,851
1931	3,762	28,828
1932	4,937	39,198
1933	6,116	54,279
1934		61,599

The personnel is entirely inadequate, and this committee is in accord with the minimal requests for increases for this clinic, as follows:

(a) Additional personnel to the extent of	
1 trained receptionist and record keeper	$1,440
2 trained medical social service workers (1) $2,000; (2) $1,800	3,800
(b) Automobile ($600); maintenance ($480)	1,080
(c) Additional remuneration to physicians for increased services: 6 physicians @ $10 per month	720
(d) Increased remuneration for caretaker	440
(e) Janitor	1,200

It is our opinion that the use of old arsphenamine for general clinical purposes is open to question in view of the unnecessary risks involved as compared with neoarsphenamine or similar drugs.

At the present time it is the policy of the Social Hygiene Clinic to treat cases only as long as they are infectious. This arbitrary period of therapy approximates 20 treatments. If this method is to be followed, every effort should be made to encourage patients to continue their treatments, thereafter, at some other clinic. We are in sympathy with the primary purpose of the Department to prevent and control the infectious stages.

The reporting of cases to the Health Department in a more efficient manner is advised. It is believed that the private and public clinics are coöperating while the private physicians must be urged and educated to take more of an interest in this work. Whether the laboratories should report cases is a debatable question. A one-day survey amongst private physicians is recommended possibly in coöperation with the United States Public Health Service and the Social Hygiene Society.

The Laboratory of the Department, as far as Wassermann tests are concerned, is believed to be reliable. It is recommended that the Kahn tests also be utilized. An easier method of getting blood specimens to the laboratory by means of establishing receiving stations, similar to the culture tube stations, is recommended.

Dark field facilities are provided only at the Social Hygiene Clinic, but should be available in the same manner as for the Wassermanns.

Gallinger Municipal Hospital conducts a Syphilis Clinic principally for patients discharged from that hospital, but it is available to all. Many cases are handled in this clinic from the Industrial Home School and some from Blue Plains. This clinic showed an increase from 276 new cases in 1927, to 470 new cases in 1934 with revisits up to 7,000. The clinic is staffed by 1 attending syphilologist, 2 interns, 1 graduate nurse, 2 student nurses, 1 volunteer social worker, and 1 volunteer clerk. It is used for teaching purposes by both medical schools. This committee recommends as a minimum:

1. More attending physicians.
2. One full-time social worker.
3. One full-time clerk or stenographer.
4. Better isolation facilities.
5. More adequate quarters.
6. Installation of darkfield apparatus.
7. New record system.
8. Establishment of an outpatient department for Gallinger Municipal Hospital.
9. An in-town relief station

Freedmen's Hospital conducts syphilis and G. C. Clinics. Considerable difficulty is experienced in getting adequate statistics from this institution because of their inadequate filing system. The new cases at this hospital have shown an increase from 345 new cases and 2,950 revisits in 1927 to 900 new cases and 5,106 revisits in 1934. Their facilities are quite adequate. Some inexplainable difficulty is encountered in getting the colored to attend their own clinic.

As for the private hospitals, we have at least 8 institutions giving treatments for gonorrhea and syphilis. The table of visits in this report shows as follows:

NAME OF HOSPITAL	NEW CASES				REVISITS			
	1927	1932	1933	1934	1927	1932	1933	1934
Emergency	484	295	254	297	2896	1575	2084	1926
Children's Hospital	60	391	263	240	2707	3918	4706	5045
Columbia	57	62	52	43	598	689	519	916
Episcopal Eye, Ear & Throat	200	242	242	214			4400	6023
Freedmen's	345	300	700	896	2950	7500	5000	5106
Garfield Memorial	243	200	221	250	1484	2500	2201	3207
Georgetown University	180	275	173	271	*	2185	*	*
George Washington University	138	151	229	257			1340	1000
Providence	32	291	100	121	1556	1007	1575	1675
Public Health	632	1571	2157		8949	20000	25000	
Gallinger Municipal	276	468	257	470	1135	4680	6000	7500

* No data.

Garfield Memorial Hospital handles a large colored populace close to that area. Clinical facilities are very poor. Gonorrhea is inadequately treated. Providence Hospital Clinic caters to a large group of poor white people, running frequent clinics for both gonorrhea and syphilis. Children's Hospital appears to handle its venereal disease problem well, considering the large numbers. Columbia Hospital appears to adequately handle its cases. Crowded facilities at George Washington University Hospital make their problem a difficult one. Episcopal Eye, Ear & Throat Hospital apparently has a very large clinic, considering it is a specialty hospital.

An educational campaign on venereal diseases is recommended to both physicians and lay persons. The more routine use of blood tests and smears in all dispensaries is advocated. The feasibility of a law requiring blood tests of all patients, clinic and private cases, should be entertained. Up-to-date venereal disease information made available by the Health Department and distributed gratis to all clinics is urged.

Numerous agencies are interested in the venereal disease field, notably the Social Hygiene Society whose program includes: Lecture service, library, law revision, prostitution survey, investigation of drug quackery, etc., sex education, venereal disease research problems. This organization is perhaps the foremost of its kind in the United States.

The committee subscribes to plans being made by the Bureau of Rehabilitation (a Community Chest Organization) for a more complete program in the treatment of venereal diseases in prisoners on parole. The Instructive Visiting Nurse Society is likewise studying this plan.

In conclusion, our recommendations may be summarized as follows:

1. More adequate funds for the Social Hygiene Clinic.
2. Improvement of the Syphilis Clinic at Gallinger Municipal Hospital, especially in personnel and housing.
3. A lay Health Education Program in Venereal Disease and in the reporting of cases to the Department.
4. A uniform system of keeping data on venereal diseases to be adopted by all clinics.

William P. Herbst, *Chairman*
Frederick A. Reuter
Russell J. Fields
SUBCOMMITTEE ON VENEREAL DISEASE

Subcommittee on Conservation of Vision

This subcommittee was appointed by the president of the Society almost 2 months ago, when it became apparent that a further study of the relation of vision, and ocular diseases and injury to the public health was necessary. This subcommittee realized that its task was large, but has been made further aware of its magnitude and its ramifications by what little study it has already undertaken.

It is not only the purpose of this subcommittee at this time to report a few findings, but rather to confine itself to outlining a program, and to stimulating interest in this division of the public health. We have heretofore been led to believe that, aside from tuberculosis, venereal disease and contagious diseases, there is little else to affect the public health. This subcommittee would like to call your attention to the eye and its important effects upon the public health. The following items of importance and interest may thus be listed:

1. Although there are some 535 listed blind in Washington, this list probably is not complete. A more complete register, and a study of the causes of the loss of vision would be advisable.

2. Institutional care of the blind seems limited to two institutions, which are entirely inadequate. A careful survey of this situation would seem wise.

3. There are several institutions and organizations doing an excellent work in educating and rehabilitating the blind. This work might well be encouraged by this Society.

4. Legislation governing the proper use of prophylactics in eyes of the newborn, and legislation requiring the reporting of infected eyes among the newborn, has heretofore been inadequate. This subcommittee would take cognizance of a bill now before Congress which amply corrects such shortcomings. The Medical Society of the District of Columbia is urged to help make such a bill effective should it become a law.

5. The Sight Conservation Classes in the Public School System are limited to three classes with a total enrollment of less than 45. A conservative estimate would place some 125 pupils among those so visually handicapped as to need special teaching. These classes only include grades 1 through 6. The obvious inference is that this Society might be instrumental in properly segregating the visually handicapped, in increasing the facilities in the grades now offered and in extending these classes through high school.

6. This subcommittee feels that the Medical Society might very appropriately express its desire to aid the Health Department and the Board of Education in improving eye hygiene and visual fitness among school children by urging:
   (a) Pre-school vision testing.
   (b) Testing of vision in schools at regular intervals, using standard methods, performed by qualified persons, and under properly controlled conditions.
   (c) The use of eye physicians to more adequately examine those pupils found visually unfit on routine examinations.

7. This subcommittee recognizes the fact that at each holiday season, and during intervening periods many eyes are lost because of careless use of firearms, fireworks and explosive toys. Fairly adequate legislation is now in force in the District of Columbia, but the lack of restrictions on the sale and use of the aforementioned articles in neighboring communities renders such legislation ineffective. Might not this Society, through education, help remedy this situation?

8. The present education of the public by the medical profession is greatly to be commended, but this subcommittee feels that many phases of visual defect and disease can be even further discussed with great benefit to the general public health.

9. An inquiry into the cause of industrial eye accidents in the District of Columbia would be of considerable interest and possibly lead to adequate preventive measures.

10. This subcommittee feels that ocular defects of a progressive nature and ocular infections which are contagious can be more adequately followed up in the presently existing clinics and in dispensaries, especially if the use of eye social service workers is made more general.

The above listing of items by no means exhausts the field in which this subcommittee finds itself interested. Its purpose is to stimulate interest among the Medical Society at large, and to aid future studies by succeeding Subcommittees on Conservation of Vision.

This subcommittee recommends that:

WHEREAS, Other organizations of similar interests may desire such a communication; and

WHEREAS, Such other organizations having become cognizant of the aims of this Society, may extend further help and information; therefore, be it

Resolved, that copies of this report be sent to—

1. The Health Officer of the District of Columbia.
2. The Board of Education of the District of Columbia.
3. The Council of Social Agencies.
4. The Community Chest.
5. The National Society for the Prevention of Blindness; and be it further

Resolved, That a copy of this report be presented in the Medical Annals of the District of Columbia.

FRANK D. COSTENBADER, *Chairman*
E. LEONARD GOODMAN
RALPH S. PENDEXTER
SUBCOMMITTEE ON CONSERVATION OF VISION

Further reports from the Committee on Public Health will appear in the June Annals

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Election of officers for 1935–36 resulted as follows:

Arthur M. Zinkhan, *Chairman*
David Davis, *Vice Chairman*
E. J. Cummings, *Secretary*
John H. Trinder, *Treasurer*

LOCAL MEETING OF THE FELLOWS AND ASSOCIATES OF THE AMERICAN COLLEGE OF PHYSICIANS IN THE DISTRICT OF COLUMBIA

On April 16, 1935, a group of the civilian Fellows and Associates residing in the District of Columbia met at the Gallinger Municipal Hospital for a clinical session followed by luncheon. Dr. Thomas S. Lee gave a talk and clinical demonstration on the subject of auricular fibrillation. Dr. Walter A. Bloedorn gave a talk on the various types of obesity and their treatment. Dr. Charles P. Cake discussed the surgical treatment of pulmonary tuberculosis. Dr. Walter Freeman demonstrated on a patient with traumatic transection of the spinal cord the various technical procedures in diagnosis, including combined cisternal and spinal punctures. The session was presided over by Dr. Wallace M. Yater, Governor for the District of Columbia of the American College of Physicians. Dr. William Gerry Morgan, Secretary-General of the American College of Physicians, addressed the group, reporting upon the various activities and the history of the College. Luncheon was tendered by Dr. Edgar A. Bocock, Superintendent of the hospital. This is the first of such meetings to be held in the District of Columbia. It is hoped that next year several adjoining states will arrange such a program together.

AMERICAN PSYCHIATRIC ASSOCIATION

Sessions at the Mayflower Hotel, Washington
May 13–18

This successful meeting was planned by a local committee of arrangements constituted largely of members of the Medical Society of the District of Columbia. Among those participating in the scientific sessions were noted Dr. Dexter M. Bullard, who acted as moderator at the Round Table Discussion on "Occupational Therapy," and Dr. Harry S. Bernton, who opened the discussion on paper by Dr. Joseph A. Beauchemin of the Connecticut State Hospital, entitled "Allergic Reactions in Mental Diseases." At the dinner on Wednesday, Major Edgar E. Hume, Librarian of the Army Medical Library, delivered an address, "Drama of a Great Medical Library." Saint Elizabeth's Hospital's exhibit brought many favorable comments. It included: (a) Medical photography; (b) pathological material; (c) roentgenological studies; (d) "A Hospital Within a Hospital," showing the activities of the medical and surgical buildings; (e) "A Case of Syringobulbia."

The personnel of the local Committee on Arrangements was as follows:

Drs. William A. White, *chairman*; Lucile Dooley, Bernard S. French, Mary O'Malley, Thomas V. Moore, Joseph L. Gilbert, Ernest E. Hadley, D. Percy Hickling, Merritt W. Ireland, Loren B. T. Johnson, Karl Langenstrass, Nell W. Bartram, Paul J. Ewerhardt, George A. Rowland, A. A. Marsteller, Lois D. Hubbard, S. A. Silk, Roy A. Thornly, Walter L. Treadway, Harriet C. Twombly.

AMERICAN MEDICAL ASSOCIATION

Atlantic City, June 10–14

The Medical Society of the District of Columbia will be represented in the House of Delegates by Dr. Henry C. Macatee, Delegate; Dr. Frank Leech, Alternate. In the scientific sessions and exhibits the following members will participate:

Papers:

Norman P. Scala. The Argyll Robertson Pupil.

Walter O. Teichmann and Frank J. Eichenlaub. The Relation of the Endocrine System to Dermatology.

James G. Cumming. Tuberculosis: The Interval of Supervisory Treatment and Prophylactic Control.

Ralph M. LeComte. The Management of Tumors of the Kidney, Including Cyst.

Walter Freeman, H. H. Schoenfeld and Claude Moore. Ventriculography with Colloidal Thorium Dioxide.

Discussions:

Joseph S. Wall will open the discussion on paper by Gladys L. Boyd, of Toronto, entitled: "Pulmonary Collapse in Children."

Harry H. Donnally will open the discussion on paper by Frederick F. Tisdall, of Toronto, entitled: "Inadequacy of Present Dietary Standards."

Walter Freeman will discuss paper by J. A. Hannah, of Toronto, entitled: "Alzheimer's Disease with Neuropathologic Observations."

Exhibits:

Special Exhibit on Vaccines and Serums:

James P. Leake will give a demonstration on Smallpox.

Section on Surgery, General and Abdominal:

Charles S. White and J. Lloyd Collins, Department of Surgery, George Washington University School of Medicine. Surgical Anatomy of Total Ablation of the Thyroid Gland: Exhibit of series of illustrations from dissections and operations showing the relative anatomy of the thyroid and parathyroid glands and the recurrent laryngeal nerves.

Section on Pharmacology and Therapeutics:

Sanford M. Rosenthal, National Institute of Health. Formaldehyde Sulphoxylate as an Antidote for Acute Mercury Poisoning: Exhibit of charts showing blood nonprotein nitrogen in control (corrosive mercuric chloride) and treated animals; microscopic and gross appearance of kidneys of treated and untreated animals; clinical results; etc.

Section on Nervous and Mental Diseases:

Herbert H. Schoenfeld, Claude Moore and Walter Freeman, George Washington University. Ventriculography with Thorium Dioxide: Exhibit of roentgenograms and transparencies of cases following trephine and the injection of small quantities of colloidal thorium dioxide.

Let us have a large delegation from Washington registered at Convention Hall, Atlantic City. Make your arrangements now if you have not obtained reservations.

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV JUNE, 1935 NUMBER 6

OPERATIONS FOR THE RADICAL CURE OF CANCER*

ROBERT B. GREENOUGH, M.D.
President, American College of Surgeons, Boston

The advances in the science of radiotherapy and the development of more powerful sources of radiation and of improved methods of application of X-rays and of radium which have occurred in the past 25 years have made it necessary that we should modify greatly our estimates of their efficiency in the treatment of early and favorable cases of cancer. Along with these developments of radiotherapy a new field of tumor pathology has been opened up in which the histological study and classification of tumors has been brought into correlation with their response to radiation, to such an extent that the trained tumor pathologist of today is able not only to determine the diagnosis and classification of a suspected tumor, but to hazard a reasonable prediction as to the degree of malignancy of the tumor, its presumed routes of extension and metastasis, and its probable response to adequate radiation therapy.

Thus, radiotherapy has now developed from an empiric method of experimental application of radiation, employed chiefly for palliative treatment in advanced cancer cases, and for the treatment of superficial lesions of minor consequence, to the stage where it has now established itself as the method of choice for the treatment of common and important forms of metastasizing cancer, such as cancer of the cervix, even in its early stages. Radiation has also established itself as an adequate and effective method of treatment when used as an adjuvant to surgery in a number of other situations where the employment of both methods of treatment, simultaneously or in sequence, has been found to be of value.

This is by no means too flattering an appraisal of radiotherapy as it is practiced in the great cancer institutes and cancer hospitals which are scattered throughout the world. While this development of radiotherapeutics is continuing day by day, the equipment for providing radiation in adequate amount, whether in the form of radium or of X-ray, and the personnel trained to its effective use with the pathological experience essential to its full development, cannot be so readily or promptly made available. In a country, such as the United States, cancer institutes and special cancer hospitals with adequate personnel and equipment are unable to supply treatment for more than a very small fraction of the estimated 300,000 cancer patients living in this country in any one year.

The establishment of additional cancer institutes and cancer hospitals throughout the country is greatly to be desired, but their great cost, estimated recently by Dr. James Ewing as approximately $10,000,000 apiece, and the necessity for adequately trained personnel to staff them, makes it improbable that this need will be readily or quickly supplied. Under these circumstances, the majority of patients who have cancer will be obliged to seek treatment as they have in the past, in general hospitals, and at the hands of surgeons and radiotherapists who are not attached to the great cancer institutes and are not equipped with the most efficient apparatus or trained in the advanced technic of radiation therapy.

---

* Read before the Society, April 10, 1935.

The movement for the development of cancer clinics in general hospitals is an effort to increase the efficiency of the diagnosis and treatment of those cancer patients who are unable to obtain accommodation in the cancer institutes. This is accomplished by entrusting the treatment of the cancer material of any general hospital to a group of the staff which includes those who are especially interested and informed in regard to the advances in the diagnosis and treatment which are developing so rapidly in the cancer centers. Such a group study of the hospital material, with close coöperation of the representatives of the different departments, especially surgery, radiotherapy, and pathology, tends immediately to increase the efficiency of the hospital service to the cancer patient. Since the expense of such a clinic is negligible in a hospital with adequate apparatus for radiation therapy, cancer clinics are already developing in general hospitals all over the country, under the stimulus of the American Society for the Control of Cancer and of the American College of Surgeons.

While the development of cancer clinics undoubtedly aids materially in raising the quality of service given to the individual cancer patient, and contributes also to the wider spread of medical interest in cancer and to a greater knowledge of this disease, it must be admitted that the service obtained from cancer clinics can hardly be expected to approach that of the cancer institutes and cancer hospitals, with their great concentration of clinical material and their carefully selected and highly trained staffs. Furthermore, the cancer clinic development is still at a stage far short of the point of covering the whole country, and one might venture to estimate that the majority of patients with cancer in the United States are still dependent on individual physicians and surgeons in general practice for such treatment as they may obtain. Under these circumstances, we are forced to consider the different standards of diagnosis and treatment of cancer which are obtainable in different localities, and while continuing our efforts to increase the efficiency of the service supplied to the cancer patient all over the country, we must in the meantime continue to make the best use possible of the resources which are available for this purpose.

Such a plan involves the consideration of the indications for the selection of radium and X-ray treatment or of surgical measures in the treatment of the individual case insofar as this choice may be restricted by the fact that one or another of these methods of treatment and of the personnel qualified to administer such treatment may be available or may be lacking in the locality under consideration. As an example we may take for consideration cancer of the cervix of the uterus. While there is still no general agreement as to the precise technic to be employed, it can be fairly stated that under the most favorable conditions treatment of cancer of the cervix by radium, supplemented as it may be by X-ray treatment, is accepted today as preferable to surgical treatment in the vast majority of cases. This supposes, however, that the treatment by radiation can be given with adequate amounts of radium, and that by X-ray with a sufficiently powerful apparatus to be effective. Without such resources, operative treatment of the type of the Wertheim panhysterectomy, if performed by a surgeon competent to do this difficult operation, will be the choice. If resources neither for sufficient radiation or for competent surgical treatment are available, the only hope for the patient will be her prompt reference to the nearest center where adequate facilities can be obtained. In any case, operative measures which are less radical than the accepted complete operation, and radiation treatment which is inadequate, are rarely of any benefit to the patient and often prove a serious disadvantage in that they may tend to accelerate the progress of the disease.

In the case of cancer of the breast, again the cancer institute with the trained staff may venture to modify accepted principles of treatment, which are logically based upon the accurate pathological survey of sections obtained by biopsy. In the absence of such precise information, however, the surgeon who does not perform the complete radical operation in cases of cancer of the breast which have been subjected to careful and complete study by X-ray and in which the disease cannot be demonstrated to have progressed so far that its complete removal is obviously impossible, fails to give to his patient the chance for permanent cure of the disease to which she is entitled. It has repeatedly been shown that operations which fall short of the accepted standards and do not remove completely the breast, the skin over the breast, the Pectoralis Major, the Pectoralis Minor and the contents of the axilla, with the deep fascia from clavicle to epigastrium and from sternum to latissimus, fail also of providing permanent cure in nearly as large a percentage of cases as when the standard and accepted operation is performed.

No one who sees the patients with cancer of the breast who report at our larger cancer hospitals with recurrence following operation can fail to be impressed with the fact that the standard radical operation above described is by no means invariably performed throughout the country in favorable cases. In a series of postoperative recurrent cases studied at the Huntington Hospital some years ago, one-third of the original operations performed fell short of the standard above described. It could fairly be said, therefore, that in one-third of this relatively large group of cases the operation performed by the surgeon for the cure of cancer of the breast was not the operation which by common consent has been accepted as the one which gives to the patient with cancer of the breast the full chance to which she should be entitled for the cure of the disease.

It is difficult to explain, in this day and generation, the psychology which will permit a surgeon to fall short of giving to his patient the full benefit which surgery can give. The complete operation is in no way a difficult or dangerous procedure. It should not result in any serious disability. It is possible that the pessimism which results from repeated experience of failure to cure by reason of the advanced stage of the disease in which many patients still present themselves for treatment may be the underlying cause. In the days before radiation therapy for palliation was available, forlorn-hope operations were justifiable and sometimes necessary; but very rarely indeed were they successful. Today, the fact has been abundantly demonstrated that surgical treatment in advanced cases is to be avoided and reliance is rather to be placed upon X-ray and radium therapy in all but the most exceptional case.

We find ourselves, then, in the peculiar situation of recognizing at least three different methods of treatment for cancer of the breast in use in different localities. At the lower extreme we find the surgeon, without resources for radiation therapy or frozen-section diagnosis, treating all cases by operation, and for one reason or another failing in a certain proportion of cases to perform an operation sufficiently radical to ensure the best results. The remedy for this situation is undoubtedly to encourage more widespread acceptance of the principles of the radical operative treatment of cancer, or else to provide more expert service and make it available to the entire community. As a corollary to this, however, more careful preoperative study of the patient and a more rigid scrutiny of the indications for and against operation should be assured.

In communities where resources of equipment and personnel are sufficient to permit the organization of cancer clinics in general hospitals, the more careful study of cases before operation, including X-ray examination and perhaps biopsy, and the facilities for the group study of the patient tend to ensure a more deliberate consideration of the indications and contraindications for operation, and the employment of nothing short of the accepted standard for radical operation in cases in which the possibility of cure is present. In such clinics the recognition of the failure of operative measures to deal successfully with inflammatory carcinoma and the more malignant types of cancer in young women, or with extension of the disease to widespread involvement of the axilla, will serve to prevent unjustified operative efforts which would be foredoomed to failure.

The third and most advanced form of cancer service is that provided by the cancer institutes and cancer hospitals and by those few surgeons, pathologists and radiotherapists who, either individually or in coöperative groups, have kept abreast of the advances in radiotherapy, surgery and tumor pathology and are equipped to supply the same type of service as the larger special institutions. In these clinics opportunity is given for the collection of precise data of the results of treatment by different methods of application of radium and X-ray in the varying individual types of cancer which occur in each of its more common situations. Carefully controlled experimental trial of different and new technics can here be safely made, and it is chiefly from such experiments that present knowledge of the histological grading of malignancy and of radiosensitivity have been obtained. In such a clinic, departure from accepted standards of treatment may well be justified, which would be quite unjustified at the other end of the scale and without the necessary experience and the precise knowledge of the tumor pathologist in the interpretation of biopsy specimens. In this way we find ourselves in the anomalous situation of devoting our efforts at one end of the line to promote standard complete radical operations for cancer in the interest of the individual patient; while at the same time at the other end of the line we advocate departure from these standard procedures in selected cases, in the hope of developing advances in cancer therapy that may be later made available to the whole profession.

The principles which have been discussed in regard to cancer of the breast and of the uterus apply also to cancer of a number of other organs, and again we must recognize that different standards of procedure must apply in different communities, depending upon the material resources and the professional service which are there to be obtained. In those many forms of cancer in which surgery offers practically the only chance of radical cure, whether or not it be supplemented by radiation, we may list osteogenic sarcoma, cancers of the stomach, colon, ovary and kidney, brain tumors and bronchial carcinoma. In such cases the general principles of the most radical surgical procedure are not only justified; they are a positive obligation upon the surgeon who ventures to attempt the treatment. These general principles include, first, the most complete clinical study of the patient aided by X-ray, blood chemistry, and other laboratory tests, in order to determine not only the diagnosis but so far as possible the degree of extension of the disease, both by local invasion and by remote metastasis. Such a study requires an accurate knowledge of the special routes of metastasis which are recognized for the particular type of tumor which is in question.

When operation is decided upon the general principle of the widest possible removal which is consistent with the anatomical structures involved, and with the physical condition of the patient, should be the first consideration. For this reason a careful preliminary survey of the local conditions disclosed is imperative before irrevocable steps are taken in beginning the radical operation. This is essential in order that an attempt to do the impossible may be avoided and the patient protected from a useless operation.

The necessity for keeping entirely outside of known diseased tissues, and by as wide a margin of safety as possible, is universally recognized, but in actual practice this is by no means always fulfilled. It should be recognized by every surgeon operating for cancer that an unsuccessful operation, in the words of Dr. Reginald Fitz, is a "therapeutic mistake."

There are a number of other regions and organs in which the choice between surgery and radiation treatment is one which is open to discussion, with the opinions of the most expert authorities somewhat in conflict in accordance with their experience. Thus, carcinoma of the fundus of the uterus is generally believed to be more effectively treated in favorable cases by operation than by radium or X-ray. If surgery is selected, it should be a radical total hysterectomy with usually the removal of both ovaries. If radiation is adopted for one or another reason the most accurate application of the radium to the exact area of disease is necessary, and this is not always easy of accomplishment. The general consensus of opinion favors the choice of radical surgery over radiation in favorable cases of cancer of the fundus, with radiation reserved for palliative cases and for experimental use in favorable cases only in the largest and best equipped cancer centers.

Cancer of the lip and mouth is another form of cancer in which the choice between radiation and surgery is difficult. In any case, it may be maintained that whichever form of treatment be adopted, it should be as radical and effective as possible. In this region the distinction between precancerous lesions and actual metastasizing cancer is not always sufficiently defined. In many cases the microscope is necessary to settle the question, and in many clinics the use of radium or X-ray in doubtful cases is believed to be a disadvantage unless a biopsy is done. The difficulty here lies with the confessed inability of radiation therapy, whether with radium or X-ray, to cope with squamous-cell cancer in the cervical lymphatics. On this account, whether surgery or radiation is employed to deal with the local lesion, either surgical block dissection of the neck, as practiced in general hospital clinics and in many cancer hospitals, or a modification of this procedure such as has been elaborated in some of the cancer institutes, by which the enlarged lymph nodes are removed and the adjacent remaining ones treated with radium by insertion and by heavy X-ray, must be employed.

In communities where the resources and equipment for effective radiation therapy are lacking, reliance must be placed upon the surgical treatment of mouth cancer. In such cases wide excision of the primary lesion is to be secured, whether by knife or electro-surgical apparatus, and this should again be supplemented by radical neck dissection on one or both sides as the indications warrant. Treatment of established cancer of the mouth by mere local excision is generally recognized as being inadequate, and it fails to give to the patient the chance of cure to which he should be entitled.

One other type of cancer remains for brief discussion, cancer of the skin. Here two types of disease are recognized: Basal-cell and squamous-cell cancer, although some borderline cases are encountered and occasionally examples of both microscopic types of disease may be discovered in the same specimen. Basal-cell cancer does not readily involve the lymph nodes and is usually susceptible to adequate radiation therapy, but instances are repeatedly observed in which either because of insufficient dosage or because of inherent lack of its usual sensitivity to radiation, recurrence sooner or later makes itself apparent. Whether treatment be by radiation or by surgery, the propensity exhibited by basal-cell carcinoma to extend laterally within and immediately beneath the skin for considerable distances beyond the apparent margin of the tumor must be borne in mind. When treated by radiation a much larger area than the tumor must be exposed to an effective dose, and when surgical measures are chosen the excised area must be so generous that opportunity for ingenious plastic repair of the defect is often given.

The squamous-cell type of skin cancer must be recognized as presumably capable of extension to adjacent lymph nodes, and on this account alone it is usually better treated by surgery than by radiation. In any case, the choice must depend to some extent on the resources available in the community.

While the conditions which have been described continue to exist (and we must realize that improvement in these respects will not be accomplished in any brief space of time) we must be prepared to accept things as they are, and make our plans for improving the service given to the cancer patient, with these facts in mind. Under these circumstances we must be contented to accept the surgeon's efforts to relieve the cancer patient when radiotherapy is not available, and to do our best by education to make sure that these efforts shall be as effective as it is possible to make them. Those who have the privilege of working in the great cancer institutes with their complete equipment must continue by study and experiment to increase the basic knowledge of cancer and of the different methods by which it may be given effective treatment. In doing this, however, it must be borne in mind that methods of treatment, quite justifiable when carried out under the control of a highly trained staff and with their abundant resources, may be quite unjustifiable and indeed dangerous if published and recommended for general adoption by physicians and surgeons who have not these resources and experience. There are a number of instances in the past history of cancer treatment in which procedures have been published and recommended for general adoption by authorities eminently qualified by experience to practice them themselves, which have proved to be unwise and indeed dangerous when taken up and put in practice by the profession as a whole who were not qualified by experience to use the discrimination needed to safeguard that particular procedure.

To sum up this whole question, we may say:

1. The professional qualifications and the material resources for the treatment of cancer vary in different communities.
2. Three different classifications of cancer treatment can be distinguished, as follows:
   (a) That provided by cancer institutes and cancer hospitals with abundant equipment and highly specialized personnel;
   (b) That provided by cancer clinics in general hospitals, and by groups of individual physicians and surgeons who have special interest and training in cancer and are supplied with adequate equipment;
   (c) That provided by individual physicians, surgeons or radiotherapists in communities in which facilities for adequate pathological study and for effective radiation therapy are not available.
3. The existing resources in class A and B are at present insufficient to provide treatment for more than a minority of the estimated 300,000 patients with cancer living in this country today.
4. Under these circumstances it must be recognized that a uniform standard for treatment of cancer, especially as regards surgery and radiotherapy and the choice between them, cannot be everywhere maintained.
5. Until a much larger number of cancer institutes, cancer hospitals and special cancer clinics in general hospitals are established, the necessity for the treatment of cancer by individual surgeons, physicians and radiotherapists is essential for the welfare of the people.
6. Recognition of this fact, combined with efforts to improve the quality of this service to the community, should contribute materially to a further reduction of the mortality from cancer.

THE PSYCHIATRIC DISPENSARY*

Roger S. Cohen, M.D.
Washington

I had some difficulty in making up my mind whether to call this short paper the Psychiatric Dispensary or Dispensary Psychiatry, but I finally selected the former term in the belief that it could well include the latter. I am unable to find in the literature the date of the beginning of psychiatric dispensaries, but as early as 1889, in this country, the Massachusetts School for Feeble-minded at Waverly had an outpatient clinic which apparently made an attempt to serve the community as a whole and was not merely an extension of the hospital itself. Doubtless, much confusion arises from the indiscriminate use of such terms as outpatient department and psychiatric dispensary. The former is generally part of a state or public hospital and serves as a liaison between the patients who are outside of the hospital on parole and the hospital authorities. The term psychiatric dispensary, on the other hand, should be reserved for a clinic that is not concerned with patients who are already hospitalized, but with the ambulatory patients. It may or may not be part of a general medical dispensary.

---

* Chairman's Address, Section on Neurology and Psychiatry, read before the Section, April 4, 1935.

The mental hygiene movement, of course, gave great impetus to the founding of psychiatric dispensaries; most of these are mental hygiene units which function independently. I am, however, more interested in this paper in those psychiatric dispensaries which are part and parcel of general dispensaries, and it is my belief that, except perhaps in dealing with certain problems of childhood, the physician would do well not to divorce psychiatry from the rest of medicine. We psychiatrists are too often regarded by our fellow physicians as a queer lot who deal with esoteric problems that the rest of the profession cannot understand, and I feel strongly that the establishment of psychiatric dispensaries which are not units of general dispensaries emphasizes this belief and sets us apart from our fellow physicians. The psychiatric dispensary as a part of a general dispensary gives us an opportunity to learn something from other physicians as well as an opportunity to teach them something about psychiatry. For example, the establishment of a psychiatric department in the Harriet Lane Home for Children has done much to focus the attention of pediatricians on the psychiatric aspect of their cases.

It is a sad reflection that some of us attempt to deal with psychiatric problems without knowing the patient from the point of view of his physiology and somatic pathology. Most internists, for example, have learned to deal with the personality as a whole (a phrase which originated, I believe, with the psychiatrists), so let us not make the mistake of believing that we can handle personality problems without the aid of the internist, the ophthalmologist, the surgeon or whoever else may be concerned. Unless our psychiatric department is an integral part of the general dispensary, we are almost sure to fail to coöperate with physicians in other branches and, at the same time, they will fail to coöperate with us. Then, too, the close association between psychiatric and other departments is much more satisfactory to the patient, who does not have to go all over town for examinations and wait for a long time for the sending of the reports through the mail.

So much for what I believe to be the necessary foundation of the psychiatric dispensary. The frequency with which it should operate is largely a matter of demand, and I believe that two days a week is the minimum time for operation, since there are many patients who find a week's interval between visits too long. Needless to say, the physician serving at a psychiatric dispensary should be willing to give plenty of time, because we simply cannot get good results in psychiatry when we rush our patients through. If possible, the dispensary should run on an appointment basis in order to obviate long waits by patients and also to allow the physician sufficient time in handling his cases. I know much of this sounds very platitudinous, but just allow me one or two more remarks before I get to more essential matters. I believe that the psychiatric clinic should be operated in the day time and not in the evening when everyone is tired. The argument might be raised that the less fortunate economic class cannot get off in the day, but my observation has been otherwise. I attended one evening clinic and, if I was struck by anything, it was by the comparative affluence of the patients. The need of one or more well-trained social service workers in the psychiatric dispensary is perhaps more necessary than in other branches of the dispensary, since we are dealing with total situations and we must know the patient's home conditions and the rôles played by relatives in the daily life of the patient.

The purpose of the psychiatric dispensary has been so well outlined by Dr. Adolf Meyer that I cannot possibly improve on his statement. He has said: "Its purpose is to reach out into the community and be responsible for its mental health. The psychiatric dispensary is not only for medical treatment but also for education and for the interpretation of the function of the great state hospital." Of course, the types of cases which are presented to the psychiatric dispensary are quite different from what one sees at a mental hospital. Briefly, the sources of supply are other departments of the dispensary, social agencies of all kinds, schools, courts, the police, physicians in private practice and former patients. Our patients are sent to us not only for treatment but for psychiatric consultation as well. Dr. C. Macfie Campbell has estimated that 30 to 40 per cent of the cases seen in dispensaries need psychiatric consultation or care. The patients run the gamut from very mild personality difficulties, like the man who cannot speak in public and thinks he has an inferiority complex, to cases of schizophrenia who become too burdensome to keep at home after years of illness. The emphasis falls, however, on adults with neuroses and problem children of all sorts. The adult in the psychiatric dispensary presents the usual run of neuroses with a rather high proportion of the patients showing dully normal or subnormal intelligence, the group who have been well termed 'the unstable feeble-minded.' In the past few years an increasing number of anxiety neuroses has been observed; this is assumed to be one of the results of the economic depression. In a recent paper Dr. Esther L. Richards has shown that whereas in 1926, 80 patients in the Phipps Psychiatric Dispensary were diagnosed as suffering from anxiety neuroses, 232 such cases were observed in 1932, without a proportionate increase in the total number of cases registered. A few incipient psychoses are met, and these are more apt than not to be schizophrenic in character. Many depressive reactions of all degrees are encountered, and in some dispensaries one sees frequent cases of alcoholic psychoses. The types of problem children are too numerous to be mentioned in detail, but an important fact is that one-half or more of the children will be found to have some defect in intelligence. In children everything from bedwetting and thumb sucking to chronic truancy and juvenile delinquency will be found. Then, too, in every psychiatric dispensary one sees many people who can best be called eccentric and who are not regarded as psychotic—the drifters who go from one clinic to another in search of what they do not know, the individuals with strange religious ideas, the amateur psychologists and a whole raft of variegated and assorted people who are on the ragged edge of normalcy. I should not conclude this list without mentioning the people with idiopathic epilepsy who constitute a large proportion of cases in any dispensary. Before proceeding to discuss the treatment, let me say that the diagnostic summary of the case should include a statement of the etiological factors responsible, the somatic and intellectual equipment, the behavior of the patient himself and the social, economic and environmental influences.

The great bulk of the adult neuroses and the disorders of childhood offer a fertile field for treatment, and I must emphasize that the treatment should be carried out with the coöperation of the other departments. Attention to somatic conditions must not be overlooked. Some psychiatrists have been so blinded by the claims of psychoanalysis that they tell me they cannot understand how patients can be handled in a dispensary since it is clear that psychoanalytic seances cannot be had because of the strict limitations of time. I cannot but voice regret that some psychiatrists have been so badly misled. There is much that can be done by the commonsense methods of psychiatry. Briefly, we aim either at the modification of the individual or of his environment, or both. We attack the individual's problem through discussion, suggestion, re-education, drugs, diet, recreational outlet, and by persuading him to adopt a new set of ideals or a new point of view. We try to desensitize the anxiety neurotic to his fears, explain to him what is going on in his body, and reiterate our assurance that he is not going to die or go crazy, as he very likely believes; we force the hypochondriacal individual to take up new interests, we teach him the meaning of his symptoms and make him do things that he thought impossible of performance. At times we may be a little crude in our handling of hysteria by surprise methods such as hypnotism or electrical apparatus, but we must be prepared to give much time, explanations and a chance for ventilation to the obsessive compulsive neurotic as well as use our ingenuity to find ways in which his obsessions and convulsions may be turned into channels useful to himself. Our mild depressions need understanding, interest and repeated assurance. We must also give them a formulation of the difficulty from which they suffer and make them accept their self-limited illness. We must keep them from wandering around from one clinic to another in search of relief from specific symptoms which we know are only part of the depressive illness. Sedatives are very necessary adjuncts in the treatment of the depressive reactions. Often we must re-arrange the daily schedule of these patients and we must also ever have a watchful eye to suicidal potentialities.

In our environmental handling of the anxiety neurotic we must enlist the family's aid in meeting his attacks of anxiety with a calm front instead of calling for the ambulance. We tell the family of the hypochondriac to ignore his complaints and see to it that he carries out our orders. We sometimes change the hysteric's environment completely by sending him to another home. In the treatment of epilepsy we have had much success with the use of sodium bromide and phenobarbital; we check the dosage of the former at intervals by measuring the blood bromide content. In addition, a salt-free diet and limitation of fluid intake have proved to be helpful; nor can we neglect ironing out of the situational and somatic difficulties, which are so apt to arise in the cases of epileptics. Not all the psychotic patients need be hospitalized. The patients who are not dangerous to themselves or others do not have to be rushed to the hospital. Intelligent coöperation on the part of the family with weekly visits to the dispensary can often float a psychotic patient for years, and we can thus take a load off the state hospital. When, however, hospitalization is necessary we do not hesitate to advise it or even to force it, and part of our job is to make the family understand the need for hospitalization.

It has become trite to say that in treating children, treatment must be directed at the adults who are in charge of them. We should be prepared to teach common-sense methods in the rearing of children; for example, the child with temper tantrums is either imitating a parent or is grossly mismanaged. In the former case, the parent must learn self-control or be willing to let someone else take care of the child if he is in earnest about the situation. In the latter case, a complete revision of the child's care is necessary. My experience in the treatment of the so-called glycopenic disorders of children, i.e., enuresis, sleep disturbances, neurotic vomiting, car sickness and others, has been too limited to let me generalize, but this method seems to hold out much promise. Juvenile delinquency must be met in many cases by sending the individual to an institution or to a suitable boarding home; marked mental retardation demands institutionalization with a chance to take up occupations suitable to the patient's mental age, and specific learning disabilities such as strephosymbolia require restraining in the learning processes. Often, reports must be given to teachers or school authorities to help a maladjusted child. These are just a few of the many diverse problems and their solutions which we encounter in children.

Before closing I wish to discuss one more aspect which has been stated by Dr. Meyer; namely, the use of the psychiatric dispensary in the education of medical students. To put it bluntly, I am entirely out of sympathy with the type of psychiatric education which directs the student's attention almost exclusively to chronic cases of mental disease. In the Journal of the American Medical Association for this week, there is an article by Dr. Ray Lyman Wilbur, in which he states: "Many schools, however, still rely on the old-fashioned method of taking senior students to a state hospital for a three-ring circus with human performers. The training of students in an understanding of the mental factors that may be present in the ordinary run of medical cases has not as yet progressed very far." I see no point in showing the student the comparatively rare case of prison psychosis which he will probably never see in his practice, and failing to have him see a good old case of hypochondriasis—the sort that he will have to handle daily in his office practice; nor do I see how the student is benefited by learning the differential diagnosis between catatonic and hebephrenic schizophrenia, when he might better be putting in his time learning how to do a Binet-Simon intelligence test on a 14-year-old child who has finally reached the fourth grade. Much of the teaching consists of matters which can be left to the attention of the specialist, and the student promptly forgets what he has learned as soon as he has passed his examination. To show the student only the end-products of psychotic processes while neglecting to teach him something practical about children, the early and the mild psychoses and the great mass of neuroses of adults is to misfire. A similar situation would obtain in orthopedics, let us say, if the student received his course in the home for incurables where he saw only hopeless cases of arthritis deformans and the end-results of old poliomyelitis and never saw children with club feet or early arthritis in adults. The result of this sort of teaching is very unfortunate and conditions the future practitioner of medicine in such a way that he becomes and remains hostile to psychiatry in general. Often, too, he comes to regard the psychiatrist himself as only a little less peculiar than the patients he has been shown. In a well run psychiatric dispensary, on the other hand, the future physician will come in contact with the types of patients whom he will see daily in his office, whether he does general work or enters any one of the specialties. There he can learn to recognize the types, to diagnose the patient correctly, and if he has paid attention he will not feel himself wholly incapable, as do so many now, of handling the simpler types of psychiatric problems. He will learn to see the whole problem, to formulate it in terms of a story which the patient and his family can understand, and he will know how to settle many of the problems presented to him. The net result of training in a dispensary will be a gain both to the physician and his patient.

In conclusion, let me state that I feel that the properly managed psychiatric dispensary can be of distinct value to the public, the patient, the student and the practitioner. In this paper I have briefly discussed: (1) The mechanics of a psychiatric dispensary, (2) its purposes, (3) some of the types of cases seen, (4) some methods of treating cases and (5) the value of the psychiatric dispensary to medical students.

BIBLIOGRAPHY

McDonald, J. G.: Community Value of the Outpatient Department of the Hospital for the Insane. Ment. Hyg., 1917, **1**, 266.

Richards, E. L.: Practical Features in the Study and Treatment of Anxiety States." New England J. Med., 1934, **210**, 633.

Wilbur, R. L.: Report of the Council on Medical Education and Hospitals. J. A. M. A., 1935, **104**, 1064.

THE SIZE AND SHAPE OF THE HEART*

B. W. Leonard, M.D.

Washington

The subject chosen for this paper is indeed a pretentious one. The time allotted will permit me to do scarcely more than emphasize certain recent advances in the study of cardiac contours and in the approach to the general subject of accurate cardiac mensuration. Very little will be said about the aorta; nothing about the pericardium. They constitute subjects in themselves.

Cardiac size is an all-important consideration in the study of pathological cardiodynamics. Regardless of the nature of underlying causes, cardiac enlargement, whatever its extent, is generally conceded to be a pathological state. The problem that daily confronts the clinician is the determination of the existence or absence of enlargement. The ultimate end in view, regardless of the method chosen, is an accurate appraisal not of diameters or areas, but of volume. Accurate volume determination, however, is not possible at the present time. No heart is a perfect geometrical figure whose volume could be calculated from simple measurements. Furthermore, the marked variations in shape associated with variations in position in normals would militate seriously against the establishment of standard values to use in comparisons. The commonly employed methods of physical diagnosis, although indispensable, have well-recognized limitations even in the hands of the most expert. Initiated by the original contributions of Moritz in 1902, a considerable body of useful data has been developed by the employment of the X-ray. Progress to date has been so marked that many clinicians, cardiologists and cardiac clinics throughout the country would consider themselves seriously handicapped in the study of heart disease without this important facility.

---

* Read before the Annual Scientific Assembly, May 1, 1935.

In the collection of data on cardiac contours and size, the available X-ray technics are those of teleoroentgenography and orthodiography. Without entering into a lengthy discussion of the advantages or disadvantages of one method over the other, I believe that orthodiography has one distinct advantage in that in practice it is more likely to be supplemented by information secured by general fluoroscopy of the cardiovascular stripe. The latter is indispensable. The principles involved in orthodiography are simple, and with the expertness that comes only from practice, the results are necessarily accurate within a few millimeters. Mechanical precision is assured by the use of central rays which strike cardiac margins tangentially in passing perpendicularly to the stationary fluoroscopic screen, placed, as it is, at a convenient distance from the mobile X-ray tube. By simply moving the tube and working with a narrow shutter opening, one can trace the heart outlines directly upon the screen with a glass-marking pencil. The principle involved will be sketched graphically below.

It is common practice to speak of cardiac size in terms of the cardiothoracic ratio, a fraction expressing the relationship between the widest heart measurement and that of the inner chest diameter at the level of the dome of the right diaphragm. In normals, this varies so tremendously that it has very limited value, particularly in the transversely disposed heart. To improve upon the value of the transverse heart measurement, Hodges and Eyster in 1926 brought to the problem the generally accepted statistical methods of the biometrist and established a table of predicted diameters correlated with the simple measurements of height and weight. Precisely the same statistical methods had been used successfully in the construction of prediction tables for basal metabolism. It was found that the weight factor correlated best with the transverse diameter, and that the use of the prediction table enables one to say that if the measured diameter exceeds the predicted diameter by 5 mm., the chances are 3 to 1 that the widening is abnormal.

Supplemental information has come from the study of the cardiac area in the frontal projection of its contour. Although the actual upper border of the heart must always be surmised, the lower border of the heart by the orthodiographic method can be drawn with considerable accuracy. The right and left borders, of course, can almost invariably be seen. The completed contours, when established expertly at different times for a given individual, are remarkably comparable both in shape and area. Such a similarity is noted in the results achieved by different individuals working with the same heart. Once the contours are completely drawn in, the problem of area determination is simplified by the use of the planimeter. Having determined the area of the frontal projection, it becomes necessary to compare that determination with normals. The "standard values" are those contributed by prediction tables published by Hodges and Eyster in 1924, in which areas are correlated mathematically with stature and weight. Such standard values, the best we have, are supported by a large volume of work by a number of observers, although questioned by others equally expert. The probability of enlargement with an increase of 7 cm. in determined area over predicted area is 3 to 1; with a 21 sq. cm. increase, 45 to 1.

In 1928, Eyster, in a careful study, applied his prediction formula to the problem of demonstrating enlargement of the hearts of patients with various types of valve lesions, hypertension, accidental murmurs, etc., none of whom presented either symptoms or signs of failure, and found that cardiac mensuration was a valuable aid to ordinary examination in the determination of cardiac enlargement.

Nothing has been said thus far regarding measurements of heart depth. As valuable as the frontal projection measurements may be, they should not be taken too literally as an index of the heart volumes, for as Roesler of Philadelphia recently pointed out, "(1) Two hearts of different volumes may give identical or nearly identical linear or area figures; also, (2) two hearts of equal or nearly equal volumes may give different linear and area figures." For that reason, he strongly urges that the depth of the heart be determined and compared with the transverse diameter. This relationship varies with the shape of the thoracic cage, but averages 73 per cent of the transverse diameter. Further information can be had by comparing the anteroposterior diameter with the oblique or long diameter of the heart, which is the length of a line drawn from the junction of the right auricle and the superior vena cava or ascending aorta, to the remotest part of the apical portion, points which are easily determined in the anterior view. This ratio averages two-thirds.

Much useful information escapes us if we limit ourselves to accurate mensuration only. General fluoroscopic examination of the heart in the various projections, which are secured by rotating the patient, should be performed in every case. Such a procedure yields indispensable data concerning the pulsation, the size and the position of the various chambers.

In studying pulsations, one is impressed in many instances by the extremely limited excursions of the ventricles in the horizontal plane, and wonders how so shallow a movement can be an important factor in the ventricular emptying. This particular horizontal motion is suppressed by the dampening effect of pulmonary suction, amounting to 5 or 6 Kg. In an opened thorax or in pneumothorax, this power is either completely or partially abolished, so that pulsation in the horizontal plane is seen to be considerable. Another important pulsation, which is generally masked, is the shortening in the longitudinal axis of the ventricles. That this can be of a magnitude of upwards of 5 mm. is revealed in those instances of calcified mitral valve or calcified auriculoventricular septum, in which actual longitudinal motion within the general cardiac shadow can be observed fluoroscopically.

Preliminary to the formation of an impression of heart size and shape, one must invariably consider the important effects of normal variations in thoracic conformation, the presence or absence of definite chest or dorsal spine deformity, and the presence or absence of pulmonary or mediastinal disease not directly related to the heart. That portion of the anterior projection which is formed on the left by the pulmonary conus and on the right by the fused shadow of the ascending aorta and the superior vena cava is conveniently spoken of as the "waist of the heart." It is important to know that normally in the long-chested individual with a "drop" type of heart, by reason of rotation, the pulmonary conus region becomes more prominent and produces the effect of widening the waist. Such a result might erroneously lead to the suspicion of mitral stenosis. Regarding the effect of the usual chest conformations, it is enough to say that shallow, foreshortened chests present shallow, widened hearts; deep chests, rounded, globular hearts.

The question of the effect of thoracic deformity on the heart is an extremely interesting one. Not only do all deformities of any definite degree affect the position, shape and apparent size of the heart, but what is more important, in a number of well studied instances they have seemed to be directly responsible for the development of heart failure. Furthermore, such failure has been regarded as being due primarily to mechanical strain without the implication of valve or muscle pathology, a rather unique position in the classification of cardiac etiologies. The important factors involved in these cases are reduced lung capacity and limited respiratory excursion throwing an increased burden on the right ventricle, and twisting, kinking and alterations in the course of the aorta affecting the left side of the heart.

Abnormalities in size of the various chambers can now be discussed. Isolated right auricular enlargement to an extent of more than 5 cm. from the midsternal line in the anterior projection does not occur except in pure tricuspid lesions. Definite enlargement in the direction of this chamber, as revealed by increase in distance of its outer contour from the median line, is practically always part and parcel of increased ventricular size. Confirmation of such an increase can be had by studying the patient in the right anterior oblique view (the patient being turned in such a way that his right shoulder is brought next to the screen and his spine is revealed toward the left side of the general shadow). In this position, the right auricular contour will either encroach upon or entirely obliterate the normally clear retrocardiac space.

A better understanding of the effect of enlargement of the right ventricle comes from the knowledge of two important facts. First, in beginning strain on the right ventricle the earliest effect is a straightening out of the conus region, which is best observed in the left anterior oblique view, with the patient turned at an angle and his left shoulder held next to the screen. Secondly, frank enlargement of this chamber is revealed almost entirely to the left of the median line, either in the horizontal direction or distinctly upward. Filling in of the normally clear anterior cardiac space in the position mentioned, particularly its upper portion, is suggestive but not absolutely diagnostic of enlargement of the right ventricle.

Predominant enlargement of the left ventricle can be surmised if the waist of the heart in the anterior projection is preserved or exaggerated, and if the normally clear retrocardiac space in the lateral view is either distinctly encroached upon or obliterated. Less than 10 per cent of normals show such an obliteration. The most striking example of pure or predominant enlargement of the left ventricle occurs, of course, in aortic insufficiency. Here, in its most striking way, occurs the descriptive but not diagnostic "aortic configuration."

The disposition of the enlarged left auricle in mitral stenosis presents many important as well as most interesting variations. The "mitral heart" is characterized by a number of X-ray changes, the usual one being spoken of as "mitralization," or straightening of the left border, with destruction of the "waist of the heart," due largely to prominence of the conus region. It must be borne in mind, however, that the expression "mitral configuration" like "aortic configuration" is descriptive but not diagnostic, for it may be simulated by at least a dozen distinctly different cardiovascular conditions in no way related to changes in the mitral valve, among them the normal heart in the vertical position mentioned before. While many cases of mitral stenosis show no ventricular enlargement, they invariably present some enlargement of the left auricle. Such enlargement is best seen in the lateral view where it causes diminution or obliteration of the midportion of the clear retrocardiac space in as many as 85 per cent of the cases. X-ray examination clears up, in a beautiful way, some of the problems of physical diagnosis presented by the extreme enlargements of this chamber. Such problems arise from enlargements which extend upward and to the left to yield signs related to bronchial pressure, those that extend downward either left or right, to fill out the thoracic gutters, and, finally, those that extend to the right and anteriorly to form the right border of the heart in the anterior projection.

SUMMARY

1. Fluoroscopic and orthodiographic examinations are indispensable aids in the diagnosis of heart lesions.

2. One's final impression as to the size of the heart as a whole and its chambers individually should be predicated upon measurements obtained not only from frontal but also from oblique and lateral views. The latter cannot be approached by traditional methods.

3. Because there are no absolute standards with which to compare any given heart whose enlargement is questionable, it must be admitted that "slight cardiac enlargement" cannot be diagnosed. Therefore, even with refined X-ray technic, in expert hands, one must always fall back upon data obtained by time-honored methods, to form his impressions as to the existence of any such slight enlargement. Certainly, no X-ray diagnosis of heart disease on the basis of slight enlargement can be made in the absence of relevant clinical data.

4. The prediction formulas discussed are the best we have at the present time.

Note: In the preparation of this paper, I have made use of the work of Bardeen, Eyster, Hodges, Roesler, Margolies and Edeiken. This help is gratefully acknowledged.

LEUKORRHEA*

Howard F. Kane, M.D., F.A.C.S.

Professor of Obstetrics and Gynecology, George Washington University School of Medicine

Leukorrhea, or non-bloody discharge from the vagina, may be classified, according to the place of its origin, into 2 types: Cervical and vaginal. Each of these types may, in turn, be divided etiologically into 2 forms. Discharge from the cervix is due to infection, gonorrheal or non-specific; that from the vagina is the result of infestation of an animal parasite or a fungus.

This simple classification includes practically all cases of leukorrhea. Uterine malpositions, pelvic tumors, certain endocrine disorders and tubal infection may, by increasing pelvic congestion, aggravate an existing vaginal discharge, but leukorrhea is not caused by pathological conditions in the pelvis.

Gonorrheal Cervicitis

Local treatment of the cervical discharge in the acute stage of gonorrhea is not only useless, but dangerous, in that manipulation may result in the extension of infection to the tubes or to Skene's or Bartholin's glands. No attempt should be made to control the leukorrhea of gonorrheal origin until all signs of acuteness have been absent for at least 2 months.

As the gonococcus lies buried in the folds and glands of the cervical mucosa, topical applications of ordinary antiseptics fail to reach more than the most superficial of the organisms. Strong silver nitrate solutions may give temporary relief by cauterizing the surface of the mucosa. Many gonococci, however, are thereby sealed in the depths of the glands and result in tiny abscesses which later become evident as Nabothian cysts. Douches, of course, have no curative effect on gonorrheal cervicitis, but may, by washing out accumulated discharge, afford relief for a few hours. When douches are employed, it is not necessary that the solution contain a germicide. Plain water or normal salt solution will cleanse the vagina temporarily and will not cause chemical irritation.

Destruction of the cervical mucosa and glands by means of the actual cautery is the most satisfactory method of treatment. For practically every case, the technic described by Notes is sufficient. A narrow platinum blade is passed, cold, into the cervical canal and heated slowly until there is obvious burning of tissue. The blade is then rotated on its axis 2 or 3 times and withdrawn.

This procedure causes little pain, and does not require even a local anesthetic. There is no immediate after-effect; the discomfort ends with the withdrawal of the cautery. It is, therefore, a method which is easily carried out in the office. Cauterization of the cervix less than a week before or after a menstrual period may result in pelvic congestion and consequent pelvic pain. Midway between periods is the time to be chosen when possible. Each treatment is followed by an exaggeration of the discharge which may be present for a week or more, and the patient should be told to expect this reaction. Cauterization should be repeated at intervals of 4 weeks until the cervical smear has been free from gonococci for 3 months. After treatment has been discontinued, smears should be examined at the end of 1, 2 and 6 months. If any doubt exists as to the presence of gonococci, smear examinations should be supplemented by cultures and the complement fixation test.

---

* Read before the Annual Scientific Assembly, May 1, 1935.

Cicatrix formation occasionally has followed cauterization of the cervix. This is the result of too vigorous treatment, and should not occur.

Non-specific Cervicitis

Non-specific cervicitis may be the result of infection by any of the organisms commonly found in the vagina. In most cases it follows abortion or labor. As the cervix stretches to allow the passage of the uterine contents, tiny fissures appear in the mucosa. Before these fissures are healed, streptococci, staphylococci or other organisms enter and cause a mild degree of infection. The origin of non-specific cervicitis in virgins is difficult to determine. It may be that at some time a severe illness has so lowered the resistance of the patient that the vaginal secretion has for the time being been unable to destroy or inhibit the action of the pathogenic bacteria of the vagina. In some instances the infection may have been carried from the rectum in diaper-days.

The prominent symptom of cervicitis is leukorrhea, and disappearance of the leukorrhea is evidence that the focus of infection has been removed.

In this form of cervical infection also, actual cauterization is the most satisfactory method of treatment. Two, 3, or occasionally more office treatments will do all that can be accomplished by the operations of trachelorrhaphy, tracheloplasty or amputation of the cervix.

Examination of a case of non-specific cervicitis will show eversion of the endocervical mucosa in some degree, ranging from a mere rim encircling the external os to a reddened, cystic area covering the entire tip of the cervix. This type of infection extends only a short distance into the canal.

The technic of treatment consists in making, with the cautery at a cherry-red heat, linear incisions through the mucosa about 2 millimeters apart, radiating from just within the external os to the outer margin of the infected area. As the heat penetrates the tissues for a millimeter or more, it sterilizes not only the area actually burned, but that between the lines of cauterization. Examination 4 weeks later shows the burned areas to be covered with epithelium that is normal in appearance. In most cases there will be found scattered areas which were not affected by the treatment. These should be cauterized at this time. Two or 3 treatments will cure the average case. The patient should not be discharged, however, if the smallest unhealed spot persists. Infection will spread from such a focus and within a few months the original condition will be present. While the heat of the cautery will destroy most of the deep cervical glands, occasionally 1 or 2 of exceptional size are not totally eradicated. These form cysts which may be seen after the mucosa has entirely regenerated. Puncture of these cysts with the cautery completes the treatment.

In thus curing leukorrhea by removing the cause, we are not simply relieving the patient of a disagreeable symptom. Barrows has shown that as a focus of infection, cervicitis is not infrequently the sole cause of arthritis. While millions of women have had cervicitis which has not been followed by cancer, most malignant lesions of the uterus occur at the site of previous chronic infection. By treating thoroughly every case of infected cervix we certainly will prevent the crippling of some patients and the premature deaths of others.

Trichomonas Vaginitis

Of the cases of leukorrhea of vaginal origin, probably 90 per cent are due to infestation by Trichomonas hominis. This parasite, common and usually symptomless in the digestive tract, causes a violent inflammatory reaction of the vaginal mucosa. Some observers consider Trichomonas vaginalis and Trichomonas intestinalis to be 2 distinct species, since those found in the vagina are larger and fatter than those from the rectum. The prevailing opinion, however, is that the intestinal parasite undergoes morphological changes when introduced to the media found in the vagina.

The symptoms of Trichomonas vaginitis range from a small amount of vaginal discharge which causes a mild irritation to a profuse flow accompanied by an itching which is almost intolerable. In most cases the symptoms are mild or absent during the premenstrual and menstrual periods and are especially pronounced during the first few days after the flow has stopped. The most common site of the itching is the vagina just within the introitus, but in some cases it is entirely external, usually between the folds of the vulva. The most intense suffering is caused by the presence of the trichomonas under the prepuce of the clitoris.

Diagnosis is easy. The discharge is thin, yellowish and frothy. The vaginal mucosa may show any degree of inflammation, varying with the acuteness of the condition. For microscopic identification of the organism it is necessary only to transfer a drop of the secretion on a platinum loop to a slide and apply a cover-glass. Dilution with salt solution and the use of a hanging drop, as commonly recommended, are unnecessary. The trichomonas is seen to be a pear-shaped organism about the size of an epithelial cell. Its chief characteristic, as seen in the fresh drop, is its extreme motility. For study of its flagella, vacuoles and other morphological features, a dark field is necessary. For diagnosis, however, the size, shape and motility give sufficient evidence of its identity. The transfer from the vagina to a slide, particularly if the slide is not warmed, frequently causes the trichomonas to become immotile. In this condition, identification is difficult, and hasty examination may result in a false negative report. When trichomonas is suspected and not found in the drop of secretion, the slide should be allowed to remain on the microscope for an hour or more if necessary and then be re-examined. When the organism has become acclimated to its new surroundings, it will resume its activity.

Practically every method of treatment hitherto recommended has been directed solely toward killing the trichomonas in the vagina. This is not difficult, as is shown by Davis who has killed them with many different antiseptics. It is difficult, however, to reach and kill all of the organisms in the vagina. It is necessary that the agent employed reach all of the folds and crevices of the mucosa. Merely to kill the accessible parasites is not sufficient to cure the vaginitis. The vagina must be rendered inhospitable for those which are not immediately killed, and precautions must be taken against re-infestation.

Ten years of rather extensive study and observation of trichomonas vaginitis have resulted in the adoption of the following method of treatment:

To kill the organism, the drug used is Yatren, (iodine-oxyquinilinsulphuric acid), a powerful parasiticide which contains 28 per cent available soluble iodine. Yatren is applied in the form of a paste made as follows:

Yatren	30.00 gm.
Tragacanth	25.00 gm.
Glycerin	125.00 gm.
Distilled water (violet perfume q.s.)	320.00 gm.

This is retained in the vagina by means of a lamb's wool tampon. The consistency of the paste is such that at body heat it will spread and adhere to the walls of the vagina.

The existence of trichomonas depends upon the presence of bacteria as food. A douche of potassium permanganate is employed in attempting to remove this source of supply. Should cervicitis be present, cauterization is performed with the same end in view.

The great problem is to prevent re-infestation. The facts that the symptoms are more pronounced immediately after menstruation, and that during menstruation the pad, soaked in blood and vaginal secretion forms a convenient bridge covered with an excellent culture medium, suggest a probable method of migration from rectum to vagina. Of course, it is not feasible to dispense with the pad. Elimination of the organism from the alimentary canal, therefore, should be attempted. Trichomonas probably enters the body on uncooked fruit and vegetables. Prophylaxis is impossible, since to remove from the patient's diet all of the articles which might carry trichomonas is out of the question. Drastic catharsis by means of salines will, temporarily, at least, free the intestines from the parasite.

Smithies has found trichomonas in the gallbladder. In the belief that this may be the focus of re-infestation, tetra-iodophthalein-sodium is used, as in the Graham test. This drug contains about 53 per cent free iodine and it seems to be a convenient vehicle by which iodine might be introduced into the gallbladder.

Specifically, the treatment is as follows:

On 3 afternoons a week, from the end of 1 menstrual period to the beginning of the next, yatren paste and a tampon are inserted into the vagina. The following morning the tampon is removed by the patient. Twice daily, except on the nights when the tampon is in place, a 2-quart douche of potassium permanganate, 1:3000 solution, is taken. Treatment is stopped during the menstrual period. Immediately after the flow has stopped, 3 or 4 daily applications of yatren are made. For the remainder of the intermenstrual period, the patient treats herself at home. One of the popular contraceptive jellies is of a consistency similar to that of the yatren paste and contains chinosol, a potent parasiticide. In order to save the patient the time and expense of office treatments, she is told to inject the jelly into the vagina and plug the introitus with cotton every night. Each morning she takes the potassium permanganate douche. At the end of the second month, treatment is stopped and results noted. At the beginning of the course of treatment the tetra-iodophthalein-sodium is given at bed time, followed in the morning by 2 ounces of magnesium sulphate.

The fact that every person who treats trichomonas vaginitis has his own method is evidence that no method is entirely satisfactory. Results with the above procedures have been better than with any other of the dozen or more methods which have been tried. Many patients have been free from symptoms for 1 or more years, but recurrences are all too frequent.

Monilia Vaginitis

A thin, watery vaginal discharge, frequently containing white flakes, and accompanied by severe itching is caused by the fungus, monilia. Examination of the vagina shows the mucosa to be reddened, and often of a granular appearance. Occasionally small ulcers are present, and patches which resemble the oral thrush of infants. It is probably the chief cause of the pruritus which accompanies diabetes. Plass, Hesseltine and Borts, who have made extensive studies of this condition, noted that monilia infection was relatively more frequent during pregnancy. Personal experience of the writer has been in accordance with this observation.

Treatment is simple and satisfactory. Thorough painting of the vagina and vulva with 2 per cent aqueous solution of gentian violet every other day will usually cure the condition in 3 or 4 treatments.

BIBLIOGRAPHY

Barrows, D. N.: Tr. Am. Ass'n. Obst., Gynec. & Obd. Surg., 1934, **47**, 211.

Davis, C. H.: Trichomonas Vaginalis, Donne; Experimental and Clinical Observations. Am. J. Obst. & Gynec., 1929, **18**, 575.

Notes, B.: Paper not yet published.

Plass, E. D., Hesseltine, H. C., and Borts, I. H.: Monilia Vulvovaginitis. Am. J. Obst. & Gynec., 1931, **21**, 320.

Smithies, F.: Present-day Treatment of Intestinal Protozöiasis and Factors that Determine its Efficacy. J. A. M. A., 1928, **91**, 152.

PSEUDO-SURGICAL ABDOMINAL ATTACKS IN DIABETES MELLITUS*

John H. Lyons, M.D.

Washington

Illustrative Case

On December 3, 1934, a white woman, 49 years old, was admitted to Emergency Hospital, obviously very ill. Her family history was negative except that her father had diabetes mellitus, for which he was being treated. The patient's past history was unimportant, and so far as she knew she did not have and had not had diabetes. For 1 week she had had malaise and slight nausea, and 2 days previous to admission she had developed severe upper abdominal pain, which she described as crampy, and began vomiting. The pain and vomiting persisted and her general condition became worse, so she was brought into the hospital from about 15 miles out in the country.

---

* Read before the Annual Scientific Assembly, May 1, 1935.

The patient appeared in a desperate condition. She was slightly dull mentally, her skin was dry, and there was a suggestion of cyanosis present. General physical examination was otherwise negative except for the abdominal findings. Board-like rigidity was present throughout the abdomen, and there was marked general abdominal tenderness, worse in the left upper quadrant. Her temperature was 97.6°F., the pulse 70 per minute, respirations 18 per minute, and the leukocytes 27,200 per cu. mm., with 87 per cent polymorphonuclear neutrophiles. Urinalysis showed sugar 4 plus, and a slight amount of acetone; no diacetic acid was present. X-ray of the chest was negative. Her blood sugar was 353 mg. per 100 cc. of blood. The possibility of impending coma in a diabetic not associated with any acute organic abdominal disease was considered, but it was felt more likely that she had an acute surgical condition in the abdomen which had produced the acidosis, the production of the acidosis being favored possibly by preëxisting diabetes. Her condition was so desperate that it was thought best to explore her at once under spinal anesthesia.

A high right rectus incision was made. Her pancreas was normal, likewise the liver, gallbladder, stomach, duodenum, appendix and pelvic organs. No free fluid or fat necrosis was present. In view of these negative findings the abdomen was closed and the patient was turned over to an internist for treatment. Under dietetic treatment and insulin she made a good recovery and left the hospital in 27 days in splendid condition, and has remained so ever since.

Discussion

This case is reported to show how difficult it is at times to differentiate between acute organic abdominal disease and impending coma with abdominal symptoms. It also points out what I believe to be the course of safety in doubtful cases.

It has been known for a considerable number of years that diabetics have abdominal pain at times, but Ehrmann and Jacoby, in 1925, first called attention to attacks simulating acute organic abdominal disease, occurring in diabetics in whom coma was impending. Since then a few articles have appeared in the literature, mostly from German writers, but the subject has attracted so little attention that its importance has never been fully appreciated. As a result a great many cases of impending diabetic coma have been operated on, which might have been spared an unnecessary operation. On the other hand, because of a lack of understanding of this condition and the difference between these precomatose attacks and true surgical lesions in diabetic patients, I am sure that in a great many substances a much needed operation has been withheld with disastrous results.

Any or all of the following symptoms of acute organic abdominal disease may be present: Abdominal pain, tenderness, rigidity and distention, nausea, vomiting, constipation, fever, increased pulse rate and leukocytosis. The pain is usually in the upper abdomen and may be intermittent or steady. It is often so severe as to cause the patient to throw himself about. The tenderness and rigidity are marked and apt to be more widespread than usual in surgical conditions of the abdomen, certainly in the early stages. Vomiting is persistent and usually precedes the pain. Fever is an infrequent symptom, and if present is slight. Leukocytosis is an almost constant symptom and has been reported as high as 97,750. White-cell counts of 30,000 to 40,000 are common. Some or all of the following symptoms of acidosis are usually present: Somnolence, deep slow respiration, acetone odor of the breath, acetone and diacetic acid in urine, glycosuria, hyperglycemia, decreased blood pressure and decreased CO_2 combining power.

These attacks have been the subject of a great deal of speculation, and several theories have been offered to explain the abdominal symptoms, but none is satisfactory. Furthermore, the findings at operation and autopsy have been far from constant. Ehrmann and Jacoby found hemorrhages in the stomach and intestines at autopsy. Schoendube suggested that dehydration of the tissues explained the peritoneal symptoms. Wiechmann believed that irritation of the coeliac plexus was responsible for the abdominal symptoms. In support of this they call attention to the fact that the pain sometimes radiates to the sacrum, which they state is characteristic of pain due to irritation of the coeliac ganglion. Landsberg thought rapid decomposition of the pancreas the cause of the symptoms. The dilated stomach and the large fatty liver, both frequently found in diabetic coma, have each been suggested as the cause of the abdominal symptoms.

It is extremely important to differentiate impending coma with abdominal symptoms from organic abdominal disease which is producing acidosis and coma. To operate unnecessarily on a patient in a precomatose condition is to subject the patient to great danger, but not to operate on a diabetic patient in whom organic surgical disease is producing coma is to subject the patient to even greater danger. There are several points to bear in mind which may aid in making the diagnosis. First, the patient with impending coma is likely to have had a period of drowsiness preceding the onset of the attack. Second, the vomiting of impending coma usually precedes the abdominal pain, while with organic abdominal diseases, which are amenable to surgery, the order of onset is reversed. Third, the abdominal tenderness and rigidity which are present with impending coma are apt to be more widespread than is usual with abdominal disease. But cases will occur in which it is impossible to make a positive diagnosis even after careful consideration of the history and physical and laboratory findings. In most of these cases a delay of a few hours is not dangerous, and proper insulin treatment should be instituted at once. If the symptoms are due to impending coma, prompt improvement will occur. Especially striking is the relief of pain. Should there be no improvement after 3 or 4 hours of insulin treatment, organic abdominal disease is present, and the patient should be operated upon without delay. In any case of doubt it is better to operate, using local or spinal anesthesia.

BIBLIOGRAPHY

Ehrmann, R., and Jacoby, A.: Ueber Blutingen bei mit Insulin behandelten Komafällen. Klin. Wchnschr., 1925, **4**, 2151.

Landsberg, M.: Coma in Diabetes Mellitus with Pancreatic Pain. Deutsche med. Wchnschr., 1928, **54**, 2100.

Schoendube, W.: Cause of Peritoneal Symptoms During Precomatose Period. Deutsche med. Wchnschr., 1930, **56**, 183.

Wiechmann, E.: Coma in Diabetes Mellitus; Abdominal Symptoms. München. med. Wchnschr., 1928, **75**, 1160.

ABSTRACT OF PAPER READ BEFORE THE SOCIETY

"Multiple Acute Osteomyelitis With Pyemia,"*

James A. Cahill, Jr., M.D., F.A.C.S.

The case was that of a little girl whose family and previous histories were negative. Her previous history showed only chickenpox and measles 3 years prior to her present illness. Her present illness dates from December 26, 1934, when for no apparent cause and without any history of trauma, her right leg became markedly swollen, red and inflamed. Two days later she became definitely septic with high fever and was irrational. The patient was seen in consultation at Children's Hospital and presented all evidences of an acute osteomyelitis. A radiogram was negative. The blood picture showed a moderate anemia. An immediate operation was performed. The operative findings showed definite osteomyelitis involving the entire right fibula but particularly in the lower third at the external malleolus. The periosteum was elevated and stripped from the bone and there was a considerable amount of blackish seropurulent discharge. A culture was taken from the fibula and was found to be Staphylococcus aureus-hemolyticus. This was an interesting finding in view of the fact that 2 subsequent blood cultures showed the same organism. A transfusion of 250 cc. of blood was given at the time of the operation. The course of the fever was a typically pyemic one. Two days after the first operation the patient developed a second metastatic osteomyelitic focus in the right ulna, and 4 days after the original operative procedure the entire left radius became involved. On the fifth day a bilateral parotitis developed. The patient was given daily transfusions of 250 cc. of blood but did not improve and died on the sixth day. The case was considered worthy of report as that typifying a Staphylococcus aureus-hemolyticus blood-stream infection. This was manifested by positive culture both in the blood on 2 occasions and from the fibula. It was also an interesting fact that no history of injury or trauma of any consequence preceded the original osteomyelitis.

---

* Presented at the Annual Scientific Assembly, May 2, 1935.

MEDICAL ANNALS

of the

DISTRICT OF COLUMBIA

Editorial Office, 1718 M Street, N. W.

EDITORIAL STAFF

Coursen B. Conklin, A.M., M.D., *Managing Editor*
Wallace M. Yater, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

POSTGRADUATE INSTRUCTION

Weekly Meetings

The Annual Scientific Assemblies

With all that has been done in the way of promulgating ways and means of meeting the special economic situation that confronts the physician, opportunities for development in the science and skill of his profession have been abundantly provided. Methods in vogue in the states of giving postgraduate instruction once a year during some special week and in locations convenient to groups of practitioners need no consideration in the District of Columbia owing to its geographic position, and as a consequence the frequency with which postgraduate instruction can be given. In the states, essayists or teachers are obtained from some large medical center and are most competent in the art of imparting knowledge. They are paid an honorarium in addition to their expenses. The physicians in attendance pay a rather nominal registration fee. No exact counterpart exists in this community. The Medical Society of the District of Columbia provided as a part of its postgraduate program during the year 1934–1935, 21 weekly meetings with presentations of much scientific value. Inclusive with the scientific programs were special papers furnished by the Sections which were especially designed for the general practitioner. Medical Washington, besides the teachers of two Class A schools and its noted clinicians, includes governmental physicians engaged in scientific medicine in Government institutions. Advantage is taken of the opportunity to use not only the facilities but the personnel from the United States Public Health Service, the Army, the Navy, and the Veteran's Administration. As an example it may be cited that early this year the entire staff of Mount Alto Hospital coöperated in giving a presentation on neoplasms of the lung; early diagnostic features being stressed. All of the scientific meetings enumerated above were patronized largely by physicians from within the confines of the 60 square miles comprising the District of Columbia. The usual attendance averaged 110. During the last 7 years, coincident with the Society's Annual Meeting in May, a two-day scientific assembly has been held and to this a special call is extended through written invitations to members of the profession in nearby counties of Maryland and Virginia. The number each year taking advantage of the opportunity has grown. This year some 100 physicians from nearby communities gave up two days of routine duties for the hearing of papers, witnessing the dry clinics and viewing the exhibits that make up the instructive attractions of our Annual Assembly. Three hundred of our own members registered. Many others profited. No registration fee is charged. No honoraria are provided. Out-of-town speakers are reimbursed for their expenses. All physicians are extended a cordial greeting and made welcome. A social feature is a get-together complimentary luncheon. An innovation in 1935 was continuous motion pictures from 9 A.M. to 4 P.M., both days, with no reels except pneumonia films once repeated. This visual mode of education is well recognized as having many points superior to actual clinic attendance or to any didactic method. Technic of operations, modes of procedures in making examinations and the giving of treatments such as venoclysis, lumbar puncture, etc., were displayed with unfailing detail. The pediatric pictures were especially good, depicting not only diagnostic procedures but giving full attention to details of preparing and administering food in such conditions as pylorospasm and gastro-intestinal upsets. The evident failure to recognize that the baby has a *lower* back, which should be examined, can well be dismissed with little consideration in view of the other fine points observed. The pneumonia film showed the rapid method of typing of the pneumococcus, the administering of serum, the use of oxygen tent, etc. Film manufacturers and commercial firms catering to the profession have expended large sums in having readily available reels for instruction. The subject of the cinematograph cannot be passed without comment on the development in the Society's building of a projection room with comfortable chairs and good ventilation. The theatre was somewhat improvised this year, but by 1936 a more finished place is promised. The program, it would seem, can hardly be improved.

The dry clinics were operated from the abundance of material our local municipal and other hospitals provide.

Of the exhibits, the splendid preparations of anatomical specimens with wax infiltration caused much favorable comment and were indeed outstanding. It may be well in coming years to stimulate friendly rivalry by rating exhibits, giving some token for unusual merit.

Program committees will soon busy themselves with arranging the 1935–1936 schedule. It behooves members or others who wish to appear on any of the weekly programs or in the assembly next May, to start preparing *now*. The most practical material for the giving of instruction, the most beneficial to the average practitioner in his daily work, will be selected.

TRANSACTIONS OF THE SOCIETY

Reports of Committees*

Committee on Public Health

(Continued from May issue)

SUBCOMMITTEE ON COMMUNICABLE DISEASES

The Subcommittee on Communicable Diseases begs to report its activity in two respects.

The scarlet fever epidemic during the winter months created quite a scare in certain sections of the city. By personal conversations with several interested parties, and the publication of articles relating to its communicability, your committee was able to allay some discontent.

It had been for some time the thought of the committee that a campaign for diphtheria immunization would be an ideal way for the Medical Society to show its interest in the field of preventive medicine. At the first opportunity this thought was expressed to the newly appointed Health Officer, and he was assured of our coöperation. The Committee met with the Health Officer on several occasions with other interested groups. A campaign of informing the public of this preventive measure was instituted on May first. And while the time was entirely too short in which to efficiently organize for such a campaign, we feel that much good will come of it. A number of radio announcements and talks before Parent-Teacher Associations have been made by members of the committee and many other members of the Society.

Members of the Society are lending their aid in this work and although the campaign is being sponsored by the Health Department, through its Child Welfare Service, the membership as a whole will ultimately benefit. Efforts will be continued to protect the indigent patient.

P. A. McLendon, *Chairman*
Charles A. Schutz
Margaret M. Nicholson
E. W. Nicklas
SUBCOMMITTEE ON COMMUNICABLE DISEASES

SUBCOMMITTEE ON MENTAL HEALTH

For a number of years unsuccessful attempts have been made to amend the Lunacy Law. Last year resolutions were adopted by the Society and certain provisions were considered by the committee and incorporated in a new bill which was to be presented to the Congress of the United States. The new bill would substitute a lunacy commission for the present system, with right to a jury trial. The Bar Association and the Federation of Citizens' Associations were consulted in the drafting of the bill, and are heartily in favor of it. This year effort was made to have the bill passed by Congress. The status at the present time is that the respective committees have not as yet called it up this session. We feel there is a chance of it coming up this session or next session.

H. D. Shapiro, *Chairman*
William A. White
Walter Freeman
D. Percy Hickling
SUBCOMMITTEE ON MENTAL HEALTH

---

* Presented to the Society, May 8, 1935.

SUBCOMMITTEE ON TUBERCULOSIS

The Subcommittee on Tuberculosis has continued during this year the work which they began very actively last year.

Beginning with the preparation and presentation of the detailed report on the tuberculosis situation in the District of Columbia in February, 1934, there has been a great deal for this committee to do. We feel justified in stating that the work done by this committee had as much to do with the newly aroused interest and the actual accomplishment in the program for tuberculosis in the District than possibly any other factor.

Last year the committee appeared before the District Commissioners, the Surgeon General of the Public Health Department, the Senate and House District Committees, and interviewed numerous individuals in connection with the efforts to improve the deplorable situation here. During the summer, members of the committee played an important part in the discussion as to changing the site of the Tuberculosis Sanatorium from Glenn Dale, and their work had much to do with keeping the site near Washington, as originally planned, on ground already owned by the District. During the fall and winter, individual members of the committee have made public and radio talks aiding the various groups dealing with tuberculosis; have had the privilege of consulting about the plans for the new Sanatorium, thanks to the Engineer Commissioner, Colonel Sultan, and have appeared before the Senate District Committee urging further appropriation for tuberculosis work and aid for the Health Department.

Since arrival of the New Health Officer, Dr. Ruhland, the committee has been asked to coöperate in the various improvements in tuberculosis handling here which they are initiating, and has sat with his committees dealing with this problem. Members of the committee have helped in the speaking campaign which preceded the survey of high school pupils.

We feel that this committee has thoroughly justified its existence in the past two years, and that a ground work has been made for continuously useful service in the future, as the contact point between the Society and various agencies working for the control of tuberculosis here, a contact point sadly lacking in the past.

We urge then that this committee be kept on a very active basis, and that its personnel be well chosen so that its accomplishments may not fall short of the real need of its service.

John Minor, *Chairman*
James P. Leake
C. R. L. Halley
Montgomery Blair, Jr.
SUBCOMMITTEE ON TUBERCULOSIS

Committee On Public Information

Reference is made at the outset of this report to a preliminary report made by the Committee on Public Information to the business meeting of February 6, 1935. The said preliminary report, properly considered, is a part of the record of all our activities and to avoid repetition will be thought of as a part of this report.

It may not be amiss, however, to repeat that at the commencement of its year's activities, the Committee on Public Information did not address itself mainly to the functions of censorship but undertook rather to establish and operate regular channels for handling news and public information, so that the entire membership might know that the Society had provided itself with regular and approved means of communication with the public.

These activities are naturally subdivided under three heads: (1) Public address; (2) wireless broadcasting; (3) press.

The committee organized the first of these as a "Speakers' Bureau," under the management of Dr. Don S. Knowlton.

Dr. R. L. Sexton was appointed in charge of our broadcasting activities and his report is as follows:

> Since the initial broadcast made on October 4, 1934, over Station W M A L, a total of 39 broadcasts have been made. Eight of these were special broadcasts on timely subjects, and the remainder were the regular weekly broadcasts along general lines suggested by the Radio Bureau of the American Medical Association. It was our endeavor to have the addresses informative, instructive, interesting, attractive, not too technical, and on timely subjects. Some were in essay form, some in monologue, in dialogue, in triologue, or in radio drama or play form. The District of Columbia Chapter of the American Red Cross, under the direction of Commander W. E. Longfellow, gave a series of 4 First Aid broadcasts which were most interesting.
>
> Members of the Medical Society, proficient in the subjects, are selected and agreed upon by every member of the committee to speak on a certain date. They are then approached by telephone, or letter, and if the time is agreeable, the regular form is filled out and sent.
>
> Members of the Medical Society of the District of Columbia and associated organizations such as the District of Columbia Dental Society, Washington Heart Association, Medical-Dental Service Bureau, American Red Cross, Child Hygiene Service of the Health Department, and the Fire Department of the District of Columbia have been very coöperative in bringing to the radio audience programs of an interesting and versatile nature.
>
> It was the endeavor of the committee in planning Radio Broadcasts, to follow closely to the general policy in disseminating for public information, and the committee feels that as time goes on, the public will be gradually trained to appreciate such broadcasts for information, rather than the exaggerated information given out in the commercial broadcasts.
>
> In preparation for the planning of this year's program, Dr. Bauer, of the American Medical Association, who has had a

number of years of experience in broadcasting for the American Medical Association, was contacted and he visited Washington where your chairman and other members of the committee conferred with him frequently over the better part of a week. A great deal of valuable information was gained from these conferences and instruction from Dr. Bauer has been extremely useful, we believe, in our radio efforts.

The committee earnestly recommends that these broadcasts be continued without interruption during the entire year, and that the newly appointed committee carry on at least this amount of broadcasting if not more. Two test talks were given to determine the number of replies which would be received. For one, there were approximately 30 requests, and for the other approximately 50. This was considered by the National Broadcasting Company as a very good response of this type of local program.

Early in the year personal contacts were established in the various city rooms of local papers and every effort has been made to keep these relationships pleasant in order that our press releases might have due consideration when made. We may comment in general that the papers seem to have been rather generous in allocating space to our releases, although they have not shown any particular desire to have material of a straight "health advice" type.

It is possible that one of the papers might be induced to take a regular daily or weekly feature of that sort if somebody had the time to make sure of its preparation.

We have endeavored to show no favoritism to any particular paper, although papers, of course, are always anxious for exclusive releases. Our press releases have been sent not only to these local city rooms, but also to Science Service, Universal Service, Associated Press, and United Press Association; and the news releases concerning the Annual Scientific Assembly were sent also to the Intercity News Service. Our releases have covered abstracts of scientific papers delivered before the Society, news of the Society's activities and in particular those activities affecting the public interest. Prominently featured this year has been our interest in and coöperation with the new Health Office Administration.

Early in March the chairman was invited by the Health Officer to sit in on the conferences planning for Child Health Day, May 1, and at the request of the conference he undertook the supervision of publicity for this campaign which associated the joint effort of many organizations of which the Medical Society of the District of Columbia was one.

During that campaign we were also asked to join our forces in the coming tuberculosis case-finding survey being conducted by the Health Department. This project was approved by the Medical Society and we manifested our coöperation in part by assuming the publicity for that campaign.

In both of these campaigns we have had the valuable assistance and publicity of Mr. Edwin Potter, press agent for the Association for the Prevention of Tuberculosis.

Altogether, since October, we have clippings of hundreds of articles appearing in local papers either from our direct releases or from news we arranged to have covered. This file of press articles is not quite complete and does not show how many of our releases were carried on the wires of the news services.

The committee, this year, has made use of the services of a press writer, starting with the first of November, last, at a cost of $30 a month. It is believed this amount could readily be absorbed in the cost of a full-time official who should be acquainted with press releases well enough to take care of the actual writing.

Activities in the field of investigation should be mentioned at this time. We have had requests relative to the "Radioclast," which resulted in an article we published in a current issue of the Annals. Advertisements for "Marmola" appearing in the local press have had our attention. The matter of the "Hay Diet" articles in the local paper were discussed in our earlier report.

The committee feels that attention should be directed to the "policy" adopted by the Society, November 5, 1930, regarding the activities of this committee. In regard to sections 4 and 6, in particular, it would be desirable to know the present attitude of the Society respecting these matters. If the Society desires that this policy be upheld and that the causes therein furnished for action against any member should be considered valid, they should then be added by appropriate amendment to the Constitution of the Society without which no disciplinary action is possible. The present committee would suggest that if section 4 be retained, it should be revised in such a way that all members of the Society be urged to avoid press interviews on all medical subjects unless such interview be arranged at the request of the Committee on Public Information. Our experience shows that most of our members are not able to cope with the ways of reporters and interviewers and that such interviews have resulted in misquotations or misrepresentations often enough for it to be made a matter of note here. This does not imply that a typewritten statement from a member might not be cleared to the press through the committee.

Respecting the release of matters which pertain to the business of the Society, it would be of a great deal of benefit if the Society would indicate by executive session when the nature of its business is confidential.

Papers read before this Society should be available for press notice by the committee. Papers read by our members before smaller societies in this region should likewise be available. Papers read by our members before larger regional societies and articles concerning such societies should be subject to publication from the

Society concerned, and if published by the arrangements of that Society—and not by the member himself—our committee should not take jurisdiction.

Finally, it must be noted for the information of those who might view publicity as inequitable, that publicity will of necessity gravitate towards those who get things done (sometimes out of proportion to the worth of the thing done). This is so decidedly a fact that nothing the Society or Committee might do would very materially change it, with the exception that by managing its own publicity the Society can have it appear in the least harmful and most helpful manner possible.

The work included in this committee's report is the result of an unusual amount of effort—so much in fact that it is not reasonable to expect a committee in the future to devote that amount of time to it. In our previous report we have made our suggestions about a full-time official for carrying forward this work; that matter is now in the hands of the Executive Committee, and ought to be acted upon at an early date.

The committee has endeavored this year not only to give the public information from the Medical Society, but to give the Medical Society information from the public. In keeping its ear to the ground thus in newspaper offices and elsewhere, the committee has reason to believe the truth of its assertion in the previous report that this Medical Society will be heard with respect and is in a strategic position to lead professional and public thought. This respect, however, imposes on the Society the obligation to have something worth while to publicize; promulgating half-baked theories or poorly digested reports will surely react in the public mind against the standing and prestige of this Society.

While standing on its rights as it conceives them to be, the Society and the profession-at-large cannot afford—for the sake of its own self-preservation—to ignore the trend of the public thought and public clamor. In these days when those in politics and Government are ready at any moment to seize upon any pretext to establish more paternalistic forms of legislation affecting medical matters, the time is poorly chosen, it would seem, to stand up and insist upon our rights to the last degree when, as a matter of fact, to save ourselves we must go along to some extent with public opinion.

Particularly, the existence of wheels within wheels in our structure will seriously threaten our solidarity. It is not possible to keep such developments within the 4 walls of this building and they surely will injure our public standing.

Herbert P. Ramsey, *Chairman*
Roy Lyman Sexton
Don S. Knowlton
W. Preston Haynes
Robert M. Bolton
COMMITTEE ON PUBLIC INFORMATION

Amendments to the Constitution*

1. Chapter VII, Article III, Section 7: (Amended to read as follows:)

(a) The Compensation, Contract and Industrial Medicine Committee shall act in matters of difference between members of the Society and insurance carriers. The chairman of the committee is empowered to appoint two members of the Society, not necessarily members of the committee, to meet with two qualified representatives of insurance carriers for the settlement of any disputed bills between physicians and carriers. No such arbitrator shall sit in any case in which he, or a party he represents, is interested. If no agreement can be reached by such arbitrators, the matter in dispute shall be referred to the full committee, and any member of the Society submitting to arbitration as herein provided shall abide by its final decision.

(b) It shall investigate all charges of unethical conduct against members of the Society as regards workmen's compensation, industrial medicine and/or contract practice; and to review contracts between physicians and employers on any matter pertaining to workmen's compensation or contract practice.

(c) In all matters pertaining to workmen's compensation and/or contract practice, it shall be a fact-finding committee and to this end shall make such investigations as it may deem proper or as it may be requested to do by the Executive Committee or by the Society.

(d) Upon failure to amicably adjust any case which has received the consideration of the committee, or if it finds that which in its opinion indicates a serious breach of medical ethics on the part of a member of the Society, it shall in such instances report its findings, with definite recommendations, to the Committee of Censors and/or the Executive Committee.

(e) It shall prepare a list of qualifications for members in compensation practice for adoption by the Society.

(f) It shall adopt a fee table for compensation work.

2. Chapter IX, Article III, add:

Sec. 3. Members desiring to do compensation practice shall equip themselves to meet the qualifications provided for in Chapter VII, Article III, Section 7, paragraph (e).

Sec. 4. It shall be unprofessional for members in compensation practice to place posters, or for them or their agents to solicit work, directly or indirectly, or to charge less than the fees provided in Chapter VII, Article III, Section 7, paragraph (f).

Sec. 5. A member called to treat a patient injured in industry, and insured under the Workmen's Compensation Act, shall promptly and from time to time contact the adjuster of the company insuring the employer of the patient, making all suitable efforts to determine his identity in cases where this may be necessary, inform him of all the circumstances of the case and keep him posted on its progress. If, bearing in mind the qualifications of members doing this class of practice, the member feels aggrieved by any action of the company, he may present the matter to the Compensation, Contract and

---

* Adopted by the Society May 8, 1935.

Industrial Medicine Committee, which shall make every effort to effect a satisfactory adjustment and to safeguard the interests of the member making the appeal.

Sec. 6. Any member notified by employers and/or insurance companies to examine and/or treat an injured employee already under the care of another member can do so only after a full and frank discussion with the member in charge to the end that he, the member in charge, shall completely understand the situation; to do otherwise is unprofessional. If, following this discussion, the member in the employ of the insurance company assumes the treatment of the patient, and the member originally in charge feels himself aggrieved, he may appeal to the Compensation, Contract and Industrial Medicine Committee; and at hearings held by this committee in such cases the member in the employ of the insurance company must be prepared to justify his action, or be liable to citation to the Committee of Censors under charges of unprofessional conduct.

REPORT OF DELEGATES TO FEDERATION OF CITIZENS' ASSOCIATIONS

During the past year the Federation has held 20 meetings. One or both of your delegates have been present at each meeting. This direct contact with this body of active citizens has been a benefit to the Medical Society and, we believe, of value to the citizenry of the National Capital. The work of the Federation of Citizens' Associations is worth while. Congress recognizes it as the only voice of the people of this city and lends its sympathetic ear.

For the past 2 years 1 of your delegates (CBC) has been chairman of the Federation's Public Health Committee. In that capacity he has been able to promote the cause of public health from the standpoint of the physician. Some of the items considered were: Use of incinerators; sewage disposal; increasing the number of physicians, dentists and nurses in the schools; smoke law; prevention of blindness in the new-born; regulating barbering; beauty parlor regulations; excessive noise from automobile horns (a Medical Society Resolution); new Food and Drug Law; Mental Health Bill.

Recently 1 of your delegates, Dr. H. S. Bernton, resigned, and Dr. P. A. McLendon was elected to fill the vacancy. The Society is to be congratulated in having such an efficient member to assume this work.

The signers of this report recommend:

1. That a new delegate be elected as co-delegate to serve with Dr. McLendon.

2. That an amendment be added to the Constitution or By-laws making the senior delegate a member of the Executive Committee of the Medical Society. This is necessary so that the delegates can learn and discuss the wishes of the Society. We append herein in writing such a recommendation and make it part of this report for your consideration.

Amend the Constitution of the Medical Society of the District of Columbia to read as follows: "The senior delegate to the Federation of Citizens' Associations shall be a member of the Executive Committee."

H. S. BERNTON,
CHARLES B. CAMPBELL,
Delegates.

ACTIVITIES OF SECTIONS

SECTION ON NEUROLOGY AND PSYCHIATRY

Minutes of the meeting held April 4, 1935

Members of the Section present included Drs. Walter Freeman, Samuel M. Dodek, Roger S. Cohen, H. D. Shapiro, Antoine Schneider, Alice H. Kiessling, H. H. Schoenfeld, Alexander Simon, and about 12 visitors.

The Section was called to order at 8:15 P.M., by the chairman, Dr. Roger S. Cohen. Minutes of the preceding meeting were read and approved. The chairman called for nominations for officers for the ensuing year with the understanding that the nominations would be acted upon by the executive committee of the Section sitting as an electoral college at a special meeting in May called for the purpose: For chairman, Dr. Walter Freeman was nominated by Dr. Schoenfeld, seconded by Dr. Shapiro; for vice chairman, Dr. H. D. Shapiro was nominated by Dr. Schneider, seconded by Dr. Schoenfeld; for secretary, Dr. Antoine Schneider was nominated by Dr. Shapiro, seconded by Dr. Schoenfeld; for the executive committee, Drs. Roger S. Cohen, Alexander Simon and Alice H. Kiessling were nominated. There were no other nominations.

Scientific Program

1. "POLYNEURITIS OF PREGNANCY: REPORT OF CASE." **Samuel M. Dodek, M.D.**

Polyneuritis occurring in pregnancy is an uncommon but very serious complication, usually occurring with hyperemesis. The hyperemesis is often of the neurotic type but very persistent. The neuritis usually begins from the twelfth to the fourteenth week, or it may be postponed to the fourth or fifth month. The patient first complains of a little pain and weakness in the lower limbs, deep reflexes disappear, motion is lost, and there is wasting of the muscles. The feet and hands are affected only in the more severe cases. Sensory symptoms are variable; stretching the nerves and pressure on the muscles are particularly painful. Occasionally the bulbar nerves are involved, and there may be an ascending paralysis, possibly simulating Landry's. Tachycardia and nystagmus occur in certain cases. There are no definite changes in the viscera. The serology is unaltered. Hypertension and edema are absent. The paralysis runs a chronic course, and although nearly half of the patients die in the early stages, ultimate recovery is usual. Since the neuritis is a general one, contractures are not apt to develop. Treatment is directed toward maintaining the nutrition of the damaged muscles, combatting the pain, and also by a diet high in vitamins.

Report of Case: R. S., aged 20 years, was first seen in June, 1934, 12 weeks pregnant, having suffered from nausea and vomiting for the preceding 11 days. The blood pressure was normal; there was a little edema of the face. Under small feedings and phenobarbital the patient improved. A pessary was inserted to correct retroversion, and thyroid substance was given to correct a basal metabolism minus 30 per cent. About 3 weeks later vomiting again started, the patient became dehydrated so that proctoclysis with glucose and bromides were necessary. During this period the patient was on a very restricted diet consisting mostly of crackers and ginger ale, refusing to take milk products, eating very little meat and practically no green vegetables. Vomiting began in September and on the 24th the pulse rate rose suddenly to 120, the urine contained quantities of albumin and casts, and the icterus index rose to 17, indicating renal and hepatic damage. The pregnancy was thereupon terminated, a 5 months' fetus being expelled. On the fourth day postpartum the patient began complaining of weakness and pain in the legs, but the vomiting had stopped entirely. Calcium and cod liver oil were given in large doses; heat was applied; but when the patient tried to get out of bed the legs were paralyzed and underwent rapid wasting. Neurologic examination at this time disclosed a somewhat drowsy, slightly confused young woman with slurring of speech, great weakness in all 4 limbs with loss of reflexes, tender muscles and mild disturbances of sensibility. There was no disturbance in urination or other involvement of the sphincters. The patient was treated with increased doses of cod liver oil and calcium together with a Vitamin B concentrate, and warmth to the lower limbs. The psychic manifestations cleared up rapidly; the hands regained their function within a month, but it was about 4 months before the patient was able to walk. At that time she fell, sustaining a sprained ankle that delayed her convalescence for about a month, but she is now able to walk without assistance although in a somewhat stilt-like manner. She has gained a great deal of weight and is eating a more normal diet.

In discussion, **Dr. Walter Freeman** emphasized the significance of the mental changes in association with the polyneuritis; indicated the necessity for prevention of this serious complication; and looked forward to the time when the neuritis could be diagnosed in its incipiency since such a condition would be an absolute indication for therapeutic abortion.

Dr. Antoine Schneider called to mind that the first case reported by Korsakow of the peculiar psychosis in association with polyneuritis occurred in a pregnant woman suffering from hyperemesis.

Dr. A. Simon emphasized the vitamin deficiency that was present in this case but said that merely interrupting pregnancy would not cure this deficiency and referred to a case report in which the neuritis occurred without hyperemesis or without known deficiency indicating the possibility of a toxic factor from the pregnancy itself.

Dr. H. D. Shapiro stressed the fact that any acute illness might lead to a vitamin deficiency and that in such prolonged illnesses as typhoid the necessity for constant supervision of the diet was important. He reported a case occurring in a young woman 4 weeks after an attack of typhoid fever involving the bulbar musculature and necessitating tube feeding; eventual recovery occurred.

Dr. Roger S. Cohen asked more about the mental symptoms, the typical confabulation that occurred in Korsakow's psychosis, and the question of amnesia following the attack.

Dr. Philip Litvin had observed several cases of polyneuritis following prolonged alcoholism in which there was probably avitaminosis associated; he had found the calcium-phosphorus product reduced.

In closing, **Dr. Dodek** said that it was impossible at the present time to estimate the vitamin reserve as this patient had always lived on a diet consisting chiefly of crackers and sarsaparilla; that it was the custom to give calcium and vitamins in the last half of pregnancy; that the blood calcium and phosphorus were usually normal in pregnancy; and that a neurologic examination was probably the only way at the present time to determine an incipient polyneuritis.

2. "Thorotrast Ventriculography." **H. H. Schoenfeld, M.D., Walter Freeman, M.D., and Claude Moore, M.D.**

Colloidal thorium dioxide was first used in ventriculography in August, 1933. It is a colloidal suspension of a heavy metal that has been used chiefly to demonstrate the spleen and liver. The small amounts used in the ventricles, from 3 to 5 cc., probably has no serious systemic effect. The introduction of the material into the ventricles is accomplished by 2 trephine openings in the occiput with thorough mixing of the material with the cerebrospinal fluid before injecting it. The advantages stressed are (1) that the pressure is maintained and less distortion is possible after injection of a small quantity of thorotrast than after complete emptying of the ventricles and replacement with air; (2) that there is rapid evacuation of the material, practically none of it being demonstrable in normal cases after 2 to 4 hours; (3) that the thorotrast is freely miscible with the cerebrospinal fluid and demonstrates all the nooks and crannies that are inaccessible on account of the pocketing of air; and (4) that the material has such a heavy atomic weight that better delineation of the ventricles is possible. The material has been used in 15 cases and in only 1 case has marked meningeal irritation resulted; this child suffered beforehand from what was possibly a basal meningitis, and it is questionable how much effect the thorotrast had in increasing the irritation. No deaths have resulted so far. Dr. Schoenfeld showed slides from 4 cases. In the first one the deformity of the fourth ventricle had permitted the diagnosis of a midline cerebellar tumor in a child and this had been treated conservatively by x-ray with satisfactory result; in the second case there was marked backward displacement of the aqueduct and fourth ventricle, and this child lived 3 months, a necropsy showing a very large glioma springing from the ventral aspect of the pons. At this point Dr. Freeman demonstrated some of the pathologic changes following thorotrast injection. In the meninges the thorotrast was segregated in small clumps, sometimes free in the meshes of the meninges, often enclosed in the cytoplasm of histiocytes. There was practically no reaction on the part of the lymphoid elements; no plastic exudate and no leukocytes were present. The third case demonstrated by Dr. Schoenfeld was an epileptic in whom an encephalogram had given inconclusive results, and the striking picture obtained by injection of thorotrast into the ventricles was demonstrated as an additional reason for the use of the thorotrast. In the fourth case there had been a deformity in both the encephalogram and the ventriculogram, showing up much more clearly in the latter. Both of them were interpreted falsely, however, and upon exploration for an intraventricular tumor, a large hematoma was found over the right side of the cerebrum. In this case the removal of this membrane had not seen the clearing up of the epileptic seizures. Dr. Moore suggested dangers of thorium dioxide but said that on account of the small amounts used there would be little danger of radioactivity. He was particularly impressed by the satisfactory condition of the patients when they came to the x-ray room since they were able to coöperate in taking the film and from the radiologic standpoint the films were very satisfactory because of the density of the injected medium. Interpretation of the ventriculogram by this new type of procedure must be rather cautious until more is learned about the material. Dr. Freeman knew of 2 cases in which death had occurred following the injection of the material; in 1 case as much as 8 cc. of the material had been introduced into the ventricles and in another case death followed operation which was done very shortly after the injection of the material.

In discussion, **Dr. H. D. Shapiro** took exception to the experimental report in which large quantities of the material had been used, and pointed to the fact that when iodized oil was introduced it was used in 15 to 20 times the normal amount and was "given a black eye."

Dr. H. H. Schoenfeld, in closing, suggested the value of repeating the animal experiments, using comparable quantities of the material and introducing it directly into the ventricles where it might be diluted before coming in contact with the medullary centers. Gentle manipulation and high dilution seem to be necessary for safety.

3. CHAIRMAN'S ADDRESS: "THE PSYCHIATRIC DISPENSARY." **Roger S. Cohen, M.D.** Published in full in this issue.

On motion by Dr. Schoenfeld, seconded by Dr. Shapiro, the secretary was instructed to obtain a copy of the chairman's address and to forward it for publication by the Medical Annals of the District of Columbia.

The meeting adjourned at 10 P.M.

THE WOMAN'S AUXILIARY

This organization has recently furnished the Society's auditorium with broadloom carpet for the main aisles. This adds much to the appearance of the room, blending well in color with its furnishings. Due acknowledgment and thanks have been formally extended for this new evidence of the fine coöperation rendered by the womenfolk. A recent election resulted as follows:

Mrs. E. L. Morrison, *President*
Mrs. R. Thomas West, *First Vice President*
Mrs. Eugene R. Whitmore, *Second Vice President*
Mrs. James W. Esler, *Recording Secretary*
Mrs. Edgar M. McPeak, *Corresponding Secretary*
Mrs. F. X. McGovern, *Treasurer*
Mrs. Grant S. Barnhart, *Historian*

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

The sixth and last lecture of the Smith-Reed-Russell series for this year at the George Washington University School of Medicine was held on Tuesday morning, May 14, 1935. Dr. Karl F. Meyer of the George Williams Hooper Foundation and Professor of Bacteriology at the University of California was the guest speaker. The subject of his lecture, which was illustrated with motion pictures, was "Selvatic Plague." In the afternoon the Department of Bacteriology held a seminar, to which members of the faculty of the Medical School and guests from nearby colleges were invited. Dr. Meyer spoke on "Psittacosis," and again illustrated his talk with motion pictures.

MEDICOLEGAL

Dr. Luther H. Reichelderfer Elected Member, Medical Defense Committee

The Executive Committee, in session on the evening of May 31, 1935, elected Dr. Luther H. Reichelderfer to membership on the Medical Defense Committee for the unexpired term of Dr. Sterling Ruffin, who becomes President of the Society on July 1, 1935. Dr. Reichelderfer was a member of the original committee, resigning upon his assuming the duties of Commissioner of the District of Columbia.

Medical Defense Committee

*Summary of Work, 1928 to 1935**

Since the adoption in 1928 by the Society of a By-law for the defense of its active members against unwarranted claims based on alleged malpractice, 34 cases have been considered by the Medical Defense Committee:

Year	*Cases*
1928	2
1929	3
1930	7
1931	3
1932	10
1933	2
1934	5
1935, to date	2

Tabulated to show their disposition or present status, they are as follows:

Compromised by defendant after expense to Society of $300 for Attorney's fees	1
Compromised or otherwise settled by defendant without expense to Society	3
Dropped by plaintiff	6
Verdict for defendant, directed or by jury	9
Termination because of accidental death of plaintiff	1
Verdict for plaintiff of $10,000; retrial granted and now pending	1
Verdict for plaintiff of $2,000; appeal pending	1
No action taken by Committee because of ineligibility for assistance or other reason	10
Untried cases pending	2

It will be noted that of the total of 34 cases only 11 have come to trial (with the possible exception of some of those ineligible for assistance, or in which for some other reason no action was taken, of which group the Committee has no knowledge). Of the 11 known cases tried there was a verdict against the defendant in but 2, in 1 of which retrial has been granted and is pending and in the other appeal is pending. In 1 case (Callas vs. MacDonald), after trial and retrial with directed verdict in each in favor of defendant, appeal is pending.

It is believed by the Medical Defense Committee that the assistance of the Society to eligible members, partly financial and partly by supplying testimony, has served the useful purpose of reducing to a minimum verdicts on account of unwarranted claims, and that the attitude of the Society is now operating to reduce the number of such claims.

The total cost to the Society in the 34 cases to which this report applies, covering a period of over 6 years, has been to this date $1,542.05. This relatively small expense has been due in large part to the fact that a very large proportion of the membership is protected by insurance against charges of malpractice. In claims against insured members there is no expense to the Society.

Sterling Ruffin, *Chairman*
Francis R. Hagner
John B. Nichols
Coursen B. Conklin, *ex officio*
MEDICAL DEFENSE COMMITTEE

Dismissal of Suit Against Dr. Robey

The Medical Defense Committee, through provisions of Chapter VII, Article IV, Section 5 of the Constitution, was interested in the defense of a member, Dr. William I. Robey.

Law No. 80481: Edwin George Lee, Plaintiff, vs. Dr. William I. Robey and Terminal Refrigerating and Warehousing Corporation.
Charles S. Baker, Benjamin L. Tepper and L. G. Anderson, Attorneys for Plaintiff.
Frank F. Nesbit and Charles E. Pledger, Attorneys for Defendant.
Suit dismissed March 2, 1932.

Law No. 80525: Washington Market Company, a corporation, to its own use and to the use of Edwin Lee, vs. Dr. William I. Robey.
Frost, Meyers and Towers, Attorneys for Plaintiff.
Nesbit and Pledger, Attorneys for Defendant.

On February 26, 1934, the Jury gave a verdict for the plaintiff; upon motion of counsel subsequent thereto Mr. Justice Luhring on June 22, 1934, granted a new trial for the defendant. On April 29, 1935, the case was dismissed without cost to either party by order of the attorneys for the plaintiff. Four surgeons and a general practitioner rendered services to Lee. It had been alleged that the general practitioner was negligent in giving after care following the primary operation for empyema. Three subsequent operations were performed. Below are given extracts* from Mr. Justice Luhring's opinion granting a new trial.

---

* Presented before the Society, May 8, 1935.

SUPREME COURT OF THE DISTRICT OF COLUMBIA

The Washington Market Company, Plaintiff, v. William I. Robey, Defendant

"This is an action by the Washington Market Company, a corporation to its own use and to the use of Edwin Lee against Dr. William I. Robey to recover damages in the sum of $50,000 on account of the alleged negligence of the defendant.

The action is maintained by the Washington Market Company under and by virtue of the so-called Longshoremen's and Harbor Workers' Compensation Act which is made applicable to the District of Columbia as a Workmen's Compensation Law.

The Washington Market Company on and prior to the 4th day of December, 1928, was engaged in the refrigerating and warehousing business in the city of Washington, in the District of Columbia, and had in its employ, as a driver of one of its trucks, the use plaintiff, Edwin Lee. On or about the 19th day of December, 1928, Edwin Lee, during the course of his employment in driving a truck, became and was exposed to a rainstorm because of which he contracted pneumonia and pleurisy, followed by empyema. . . . ."

Mr. Justice Luhring then enumerates chronologically certain events which involved Lee's operations, i.e., the original operation by two surgeons, to be designated below as surgeons #1 and #2, for empyema on December 4, 1928, at which time rubber drainage tubes were introduced, with subsequent continuance of drainage through a remaining tube while under Dr. Robey's care; his second operation at another hospital on August 2, 1929, by a third surgeon to be designated surgeon #3, who removed a fabric-covered tube and inserted another tube which he later removed. A direct quotation concerning this operation reads:

"Dr. Robey had no part in the operation at *Hospital #2*† nor with after-treatment. As a matter of fact he did not cause Lee to enter this hospital."

The drainage from chest continued. Then followed a third operation at a third hospital on October 20, 1931, by a fourth surgeon, to be designated surgeon #4, when—

". . . two pieces of red rubber tubing, one of which was three centimeters in length and the other one and one-half centimeters in length,"

were removed.

"Lee failed to recover after this third operation."

Recovery did not occur until after another operation on March 9, 1933, by the same fourth surgeon.

"At this operation he laid open the sinus and curretted and removed a small area of dead bone. After this operation the drainage and discharge ceased and the wound healed." . . . .

"The declaration, after reciting that the use plaintiff Lee had developed pneumonia and pleurisy, followed by empyema as a result thereof, charges that:

> 'Dr. William I. Robey, a licensed practicing physician, was engaged by said Lee and undertook to treat said Lee professionally, and the defendant thereupon engaged a surgeon, who, on December 4, 1928, performed a certain surgical operation on said Lee, whereby a certain opening was made into said Lee's pleural cavity, and a certain rubber tube or tubing or other matter placed in the opening of said pleural cavity for drainage purposes; that after said surgical operation by said surgeon as aforesaid, said defendant in the months of December, 1928, January, February, March and April, 1929, undertook to treat and redress the wound caused to said Lee as the result of said surgical operation as aforesaid, whereupon it became and was the duty of the defendant to exercise reasonable care, prudence and skill as the attending physician to said Lee in the treatment and in the rendering of medical attention required and made necessary by reason of said operation, and to remove from said wound, said rubber tube or tubing or other material placed in said opening into the pleural cavity by the operating surgeon as aforesaid, so that said opening and pleural cavity would be free of any foreign substance or matter.'

"The negligence of the defendant in treating and redressing the wound is specifically alleged in the following manner:

> 'Yet, notwithstanding his duty in the premises, defendant did not exercise reasonable care and skill in the performance of said treatment and redressings, but negligently and carelessly failed and neglected to remove from said opening into said pleural cavity said rubber tube or tubing or other material, but did negligently and carelessly permit a piece, or several pieces of said tubing, or other material, to remain and become lost in said wound, as a result whereof said Lee did fail to improve after said operation, but continued to remain ill and to suffer, and it became necessary, to-wit, in July, 1929, for said Lee to submit to and undergo another operation at which time a piece of said tubing or other material was removed from said wound; that after said operation in July, 1929, said Lee failed to improve and continued to remain ill and to suffer, whereupon, to-wit, in October, 1931, it became necessary for said Lee to submit to a third operation at which time two pieces of said tubing or other material were removed from said wound, both of said subsequent operations being occasioned by the fact that said defendant had negligently and carelessly failed and neglected to remove all of said tubing, or other material, from said Lee's wound at the time he undertook to treat and redress Lee's said wound after said operation on December 4, 1928.'

"The evidence which is mainly relied upon by the plaintiffs to establish the negligence of the defendant is found in the testimony of the use plaintiff and his mother, Mrs. Florence Lee.

Edwin Lee, after describing the treatment administered to him by Dr. Robey after he left *Hospital #1*† was asked to relate any other incident which occurred during these treatments with respect to the dressings. He replied: 'Well, I know one time that he was redressing it, he said there was a tube missing. He dressed my back and put another tube in, and said "I will be back tomorrow." He came back the next day, and took some kind of an instrument and ran this instrument in. What he probed for I don't know. The tube was gone. He didn't find anything, so he dressed it and put a tube in that dressed place, and said: "Stay in bed, and the day after tomorrow"—I think it was, or the next day—"you come down to my office and we will take a picture." '

---

* Throughout the 4 operating surgeons are designated by number and not by name as was done in Mr. Justice Luhring's opinion. Hospitals are numbered.

† Italics mine. Ed.

"Lee then testifies that he went to the office and an X-ray picture was taken, and that Dr. Robey said 'everything was alright' and that the picture 'didn't show up anything'. Rec. pp. 6–8.

On cross-examination, Lee further testified that he believed a tube had been lost in the wound during Dr. Robey's treatment and so believed at the time the X-ray picture was made . . . . on the 22nd day of January, 1929, but said nothing to Dr. Bierman about it. He further testifies that he made no mention of his belief to Dr. (*Surgeon #2*†) or Dr. (*Surgeon #3*†) before he operated, and on redirect examination explains that the doctor probed and found nothing, and the X-ray picture did not disclose the presence of the tube, and 'then I was convinced that the tube didn't go inside; that it was burned up'.

Again, on re-cross-examination, Lee testified that Robey remarked 'the tube is gone' and asked his mother 'did you see it anywhere in the bed, or was it in the dressings when you burned them.' He testifies that his mother replied 'I didn't see it.' Rec. p. 51. Lee also testified that at the time he went . . . . for the X-ray picture the tube was visible. He says that the tube was finally removed 'along in February . . . . when he started to let it heal up on the outside.' Rec. p. 57, and shortly after the X-ray was taken. . . . . Rec. p. 57. With respect to the removal of the tube during the course of the treatments, Lee testifies that Dr. Robey would take out the tube, cut it off and then replace it, and this continued until 'that tube got bad, then he would take it out and put a new tube in its place.' Rec. p. 56. He further testifies that Dr. Robey didn't shorten the tube every time or take it out every day. He shortened the tube 'only the times he took it out,—Maybe once a week. He would cut it off and put a new one in place of it; take the old one and throw it away.' Rec. p. 58.

Mrs. Florence Lee, the mother of the use plaintiff, on her direct examination, testifies to the treatment given by Dr. Robey, and in response to the question, 'Did there come a time when the tube was missing?', answered 'yes,' and said 'The doctor asked me if I seen it in the dressing, and I told him no, I hadn't seen anything there, because I just gathered it up and put it in the stove.' Such was her custom she said, and she explained that the doctor usually laid the dressing 'right on the table beside him, but most generally when he took it off, he handed it to me.' Rec. p. 63. She says, as far as she remembers, Dr. Robey 'placed another tube', and to the best of her knowledge, he 'put a safety pin through it to keep it from entering the incision.' Rec. p. 64. She described the safety pin as a 'second size pin,' and when asked if there 'came a time when you found anything in this place where the doctor was treating Edwin Lee,' she said: 'Well, I found a safety pin on the window, but I don't know what safety pin it was. Of course I wouldn't say. But it was a safety pin very much like the one the doctor used. It was rusty.' Rec. p. 65. Mrs. Lee also testifies that after this incident of the missing tube, and on the next day, Dr. Robey brought an instrument that looked like a pair of scissors, and about ten inches long, and inserted the instrument into the incision. Mrs. Lee was present on most occasions when the redressings were done by Dr. Robey, and describes the tubing as it appeared at the time the use plaintiff was brought home from the hospital. She says: 'It was red tubing of some kind. I couldn't say, but it was red. It looked like rubber to me.'

Mrs. Lee further testifies that the doctor did the redressings in the periods following Edwin Lee's return from *Hospital #1*† until it was practically well. Then Lee went back to work, and 'after it broke open, then I dressed it for him.' At that time, she says, the tube had been removed. It was removed by Dr. Robey before Lee went to work. Rec. p. 68.

In describing the treatment given by Dr. Robey, Mrs. Lee said he shortened the tube day after day. The doctor removed the tube when he washed Lee's back. 'He washed this incision out or syringed it out.' Then he replaced the tube. 'He removed the pin, then when he cut it off, he put the pin back.' Rec. p. 69–70.

On cross-examination, Mrs. Lee says that on the day of the missing tube incident, she burned the dressing, but couldn't say for a certainty whether or not there was a tube in the dressing when she burned it. She never looked for it, but 'just rolled it up and stuck it in the stove.'

Dr. Robey, testifying in his own behalf, denies the missing tube incident and the testimony of Lee and his mother with respect thereto. He says that he had not the least idea that there was a foreign substance in the pleural cavity, but thought that there was a tubercular condition or osteomyelitis.

Dr. Robey further testifies that he redressed Lee on the day of his discharge from the hospital, and found a black rubber tube secured with a safety pin. He says that he dressed the wound every other day, using the same tube, and shortening it. In shortening the tube Dr. Robey cut it off the lower end, or the end that was in the wound, and did not remove the safety pin. On January 3, 1929, Dr. Robey testifies he finally removed the tube. He testifies that on two occasions, January 5th and January 9, 1929, he took Lee to see Dr. (*Surgeon #1*)†, the operating surgeon for examination, and again on the 22nd day of January, 1929, when the X-ray picture was taken.

In the post-operative treatment of empyema, the recognized practice, prevailing in the District of Columbia at the time, approved the use of a rubber tube for the purpose of establishing drainage. This practice likewise approved the insertion of a safety pin through this tube at its exposed end so as to prevent it from slipping or dropping into the cavity. This practice Dr. Robey followed in his treatment of Edwin Lee, and it further appears, that in conformity to proper practice, when shortening this tube, Dr. Robey did not remove the safety pin, but cut off the tube at the bottom end. Furthermore, his post-operative treatment in redressing the wound and irrigating the cavity was in accord with the standards of practice followed by the ordinary careful and skillful practitioner in the District of Columbia.

Dr. Robey's negligence, if any, primarily depends upon his knowledge that he had lost the tubing in the cavity, and thus knowing of the presence of the tubing in the cavity, he permitted it to remain there and failed to remove it. With this in mind, we may assume that the incident concerning the missing tube as told by the use plaintiff and his mother is true. Therefore, with this assumption and considering the situation as it appeared to Dr. Robey on that day, without regard to subsequent disclosures, we inquire, did Dr. Robey know or have reason to believe that the missing tube had found its way into the pleural cavity? Dr. Robey knew, as did Lee and his mother, that the top end of the tube was secured by a safety pin to prevent its dropping into the cavity, and they further knew that with this pin in place, it was impossible for the tube to drop or slip into the cavity. The Lees admit, and there is no testimony to the contrary, that at all times when the tube was in place, it was secured by a safety pin. The rusty safety pin found by Mrs. Lee on the window sill is accounted for by the presence of a baby in the household, and furthermore, it is not identified as the pin used by Dr. Robey. The doctor knew, and the evidence established, that the tube could be expelled by breathing or coughing, and therefore, his was but the natural inquiry, when he missed the tube, to ask the mother if she had found it in the dressing. Certainly, Dr. Robey had no such information as to justify the conclusion that the tube had actually dropped into the cavity. On the contrary, every fact and circumstance indicated that the tube had been removed with the dressing and burned.

On the 22nd day of January, 1929, and, according to the testimony of Lee, this was the next day after the incident, Dr. Robey again referred Lee to the operating surgeon, Dr. (*Surgeon #1*)†, and an X-ray picture was made of Lee's chest to determine the cause of his condition. Therefore, if as a matter of fact Dr. Robey suspected or believed that the tube had found its way into the cavity, what better means could he have adopted to make certain than this X-ray examination?

The X-ray picture failed to disclose the presence of a rubber tube or safety pin in the pleural cavity, but revealed a dense opacity, which obscured the left lung from the level of the fourth rib of the diaphragm, composed of both pleural fluid and pulmonary infiltration. Dr. (*Surgeon #2*)† stated that in view of the X-ray disclosures 'and our knowledge of the history of the case, we found that the failure of the sinus to close was due to an abscess.' Drs. (*Surgeons #1 and #2*)† on this occasion did not advise a further operation.

The standard of care and skill which Dr. Robey was required to exercise was the care and skill of the ordinary careful and skillful practitioner in the District of Columbia, engaged in the general practice of medicine, and administering the same treatment with due consideration for modern advancement and learning in the science of medicine.

Dr. (*Surgeon #2*)†, who assisted Dr. (*Surgeon #1*)† at the operation at *Hospital #1*†, and testifying as a witness for the plaintiff, said: 'I know of nothing else that Dr. Robey might have done to determine the cause of Lee's condition, except to refer him back to Dr. (*Surgeon #1*)†, and have the X-ray examination.' Rec. pp. 10–11.

Therefore, viewed in its most favorable light, the testimony of the Lees wholly fails to make out the case of negligence alleged in the declaration, and, therefore, the motion for a new trial must be sustained."

---

† Italics mine

ACTIVITIES AT THE GALLINGER MUNICIPAL HOSPITAL

Continued progress has been made during the past year at the Gallinger Municipal Hospital. The institution now has 1,050 beds, of which approximately 150 are devoted to patients with open tuberculosis. These patients are isolated in a special building for that purpose. The new contagious disease hospital of 150 beds, said to be the outstanding building of its kind in the country, will open about July 1. The visiting staff now numbers 139 physicians and surgeons, all of whom are members of the Medical Society of the District of Columbia and members of the faculties of the Georgetown University and George Washington University Schools of Medicine. The attendance of the visiting physicians and surgeons has been excellent.

In the field of tuberculosis up-to-date surgical procedures and treatment are being used more and more. A Chest Conference is held semi-monthly by the internists interested in handling cases of tuberculosis and by the surgeons who do the thoracic surgery. At these conferences all of the cases are reviewed in which some form of surgical procedure seems to be indicated and the procedure to be used is decided upon. Also cases upon which these operations have been performed are reviewed from time to time.

To the Department of Medicine House Staff 4 second-year medical interns are being added, so that the department now will have 2 third-year residents, 4 second-year medical interns and 7 regular interns. Clinical pathological conferences are held each week at which the clinical course and necropsy are reviewed of those patients who have died and have come to postmortem examination. Staff conferences are held each month. All physicians interested are invited to attend the chest conferences and the clinical pathological conferences. Information concerning these conferences can be obtained from the Superintendent, Dr. Edgar A. Bocock.

PERSONALS AND NEWS

Dr. William Thornwall Davis, Professor of Ophthalmology, George Washington University School of Medicine, gave a clinic on May 6th at Duke University, Durham, North Carolina, on "Refractive and Non-refractive Asthenopia."

Dr. Walter A. Bloedorn, Professor of Medicine and Executive Officer of the Department of Medicine, George Washington University School of Medicine, will read a paper, "The Rôle of Iron in the Treatment of Anemia," at the joint session of the Medical Section of the American Association for the Advancement of Science and the Minnesota State Medical Association, at Minneapolis, Tuesday, June 25.

Dr. William Gerry Morgan, Dean of Georgetown University School of Medicine, was reëlected Secretary-General of the American College of Physicians at the meeting held in Philadelphia in May.

Dr. Wallace M. Yater, Professor of Medicine, Georgetown University School of Medicine, was re-elected Governor for the District of Columbia of the American College of Physicians at the recent meeting.

American Medical Association Convention Notes

Dr. Henry C. Macatee, delegate, representing the Medical Society of the District of Columbia in the House of Delegates, was a member of the Reference Committee on Reports of the Board of Trustees and Secretary.

The Medical Society of the District of Columbia's resolution, along with other similar action taken by State societies, resulted in the adoption of a resolution by the House of Delegates instructing the trustees to appoint a committee to study the whole subject of birth control.

Three resolutions on economics proposed by the Medical Society of the District of Columbia went to the reference committee on Medical Economics which brought back a report adverse to the specific recommendations that they contained, although the report of the reference committee was sympathetic to the general attitude taken by the Society; the main argument being that none of the plans in operation had been in existence sufficiently long to develop enough experience to know fully their possibilities, and none was of such character that it could be recommended for general adoption.

The following new officers were elected:

J. Tate Mason, Seattle, *President-elect*
Kenneth M. Lynch, Charleston, S. C., *Vice President*
Olin West, Chicago, *Secretary*
Herman L. Kretschmer, Chicago, *Treasurer*
Nathan B. Van Etten, New York, *Speaker of the House of Delegates*
H. H. Shoulders, Nashville, Tenn., *Vice Speaker of the House of Delegates*

Registrants from the District of Columbia, A. M. A. Convention, Atlantic City, N. J., June 10–14, 1935, constituting 20 per cent of the **membership of the Medical Society of the District of Columbia:***

G. L. Alexander
S. A. Alexander
Harry F. Anderson
William P. Argy
Charles G. Aronstein
John M. Baber
M. I. Bierman
Joseph B. Bogan
Boyce R. Bolton
Robert M. Bolton
Grafton Tyler Brown
William F Burdick
John W. Burke
James A. Cahill, Jr.
John R. Cavanagh
Elizabeth Chickering
Cline N. Chipman
William Earl Clark
Harry L. Claud
J. Lloyd Collins
Coursen B. Conklin
Edgar P. Copeland
Jerome F. Crowley
Cyrus W. Culver
James G. Cumming
E. J. Cummings
Harry F. Davies
David Davis
William T. Davis
William DeKleine
Samuel Dessoff
H. H. Donnally
H. N. Dorman
Anna Bartsch Dunne
F. J. Eichenlaub
Joseph F. Elward
James W. Esler
Russell J. Fields
James A. Flyn
Stuart O. Foster
A. Frances Foye
Walter Freeman
Leslie H. French
Leslie T. Gager
James A. Gannon
F. A. J. Geier
William T. Gill, Jr.
A. C. Gray
James N. Greear, Jr.
Louis S. Greene
Thomas A. Groover
Henry B. Gwynn
Charles R. L. Halley
B. L. Hardin, Jr.
Joseph Harris
Lynwood Heiges
Joseph M. Heller
William P. Herbst, Jr.
Myer J. Herschman
R. Arthur Hooe
Edmund Horgan
Julian M. Howe
Charles P. Howze
Oscar B. Hunter
LeRoy W. Hyde
Merritt W. Ireland
J. Bay Jacobs
H. Gladys Kain
S. R. Karpeles
Sollie Katzman
H. W. Kearney
Adam Kemble
J. B. Kennedy
H. H. Kerr
Elizabeth Kittredge
Jacob Kotz
Lauretta E. Kress
Huron W. Lawson
James P. Leake
Ralph M. LeComte
Thomas S. Lee
Frank Leech
B. W. Leonard
John A. Logan
John J. Lynch
James Alexander Lyon
Henry C. Macatee
William B. Marbury
A. E. Marland
R. V. Mattingly
J. J. McCarthy
Lee McCarthy
George W. McCoy
C. H. McEnerney
M. J. McInerney
Beveridge Miller
Claude Moore
W. C. Moore
Robert E. Moran
W. B. Morse
S. B. Muncaster
Lester Neuman
Margaret M. Nicholson
Aaron Nimetz
Leo B. Norris
Bernard Notes
Edward M. O'Brien
Paul J. O'Donnell
Mary O'Malley
Ella Oppenheimer
Philip O. Pelland
Matthew White Perry
E. F. Pickford
Alec A. Preece
D. W. Prentiss
E. E. Quayle
E. Clarence Rice
Arch L. Riddick
P. S. Rossiter
Ernest F. Sappington
Norman P. Scala
H. H. Schoenfeld
F. C. Schreiber
H. R. Schreiber
William A. Shannon
Ernest Sheppard
John J. Shugrue
Alma Jane Speer
William M. Sprigg
W. Calhoun Stirling
Walter Teichmann
Earl R. Templeton
George B. Trible
John H. Trinder
J. R. Verbrycke, Jr.
Joseph S. Wall
Walter A. Wells
Charles S. White
Eugene R. Whitmore
R. W. Wilkinson
Prentiss Willson
William H. Wilmer
Wallace M. Yater

---

* Query: How many constituent bodies of the A. M. A. had as large a percentage of attendance?

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV JULY, 1935 NUMBER 7

THE INCIDENCE, DIAGNOSIS AND TREATMENT OF CANCER OF THE STOMACH*†

J. SHELTON HORSLEY, M.D., F.A.C.S.
Richmond, Virginia

The vital statistics since the beginning of this century show a great increase in the mortality from cancer. This increase is really basic, and not due solely to the increase in population. Thus, the rate of deaths from cancer per 100,000 population in 1900 was 63.0, and in 1933 it was 102.2. Taking the period of a decade from 1920 to 1930, we find that the total number of deaths from cancer in the United States Registration Area in 1920 was 72,931, and the rate per 100,000 of population was 83.4; in 1930 the number of deaths was 115,265, and the rate per 100,000 was 97.2.

It is generally assumed that there are 3 living cases of cancer for every death therefrom, so that at present there may be said to be nearly a half million cases of cancer in the United States. This estimate, of course, is necessarily inaccurate, and it should probably be higher rather than lower, because the superficial cancers or those that can be readily observed are often treated promptly and cured, and so do not reach the mortality statistics.

We are living in a rapidly changing era, and it is necessary to adjust ourselves, not only from the standpoint of economics but from the standpoint of biology and health, to these changing conditions. The prolongation of life to the expectancy of about 59 years and the decrease in birth rate throw a larger percentage of individuals into the late decades of life. Thus, the number of persons over 65 years of age has doubled in the past 35 years (Science, 81:11, March 1, 1935). In 1900 there were about 4,000,000 persons in the United States 65 years of age or older. At present there are 7,500,000 in this age group, and by 1970 this number is estimated to increase to more than 15,000,000. Such a report, based on estimates of the Committee on Economic Security appointed by President Roosevelt, shows also that in 1900 America had a little over 4 per cent of its population in the age groups of over 65 years of age, whereas in 1930 this proportion was increased to 5.4 per cent, and by 1970 it is estimated that it will reach 10 per cent of the population. In other words, in 1970, 1 person in every 10 will be more than 65 years of age. Cancer is classed in the so-called degenerative diseases, and although it may occur at any age, its incidence is much greater after the age of 40 years. These figures necessarily mean that with the same incidence of cancer in the later decades of the population we shall have a marked increase in cases of cancer. The problem, then, is not one in which we are dealing with a regression of an important disease, but in which the increase will be continuous and great unless by some efforts at early diagnosis and treatment we can check this onward march of cancer.

THE INCIDENCE OF GASTRIC CANCER

The chief offender in causing these deaths is cancer of the stomach. In 1920 the United States Census Reports show that there were 17,625 deaths from cancer of the stomach and duodenum, being a rate of 20.1 per 100,000; in 1930 there were 25,408 deaths from cancer of the stomach and duodenum, a rate of 21.4 per 100,000. However, although the total number of deaths from cancer of the stomach and duodenum in 1930 was 25,408, and in 1933 it was 25, 565, with an increase of 1,157 deaths, the actual rate per 100,000 decreased somewhat during these 3 years, being 21.4 in 1930, and 21.1 in 1933. This is not a very great decrease, but considering that heretofore the increase has been rapidly mounting it seems that we may gather some consolation from even such a slight decrease and the knowledge that the ratio per 100,000 has at least ceased to advance during these few years. Just what is the cause of this decrease it is difficult to say, but we may attribute it to the educational efforts of the American Society for the Control of Cancer and of organized medicine as represented by the American Medical Association and the American College of Surgeons and various other associations.

---

* Read before the Annual Scientific Assembly of the Society, May 1, 1935.

† From the Surgical Department, St. Elizabeth's Hospital, Richmond, Virginia.

The statistics from the United States Census Reports representing the incidence of cancer of the stomach are probably much too small. When necropsies are frequent the incidence of gastric cancer appears to rise. Many obscure deaths are regarded as caused by some other disease, when on careful postmortem examination they are shown to be from cancer. According to Eusterman of the Mayo Clinic (Wilbur), one third of all the deaths from cancer in men and one fifth in women are from cancer of the stomach, and in his opinion 38,000 persons in the United States die every year from cancer of the stomach.

The average age of men with gastric carcinoma is 54 years, of women 53 years, and Eusterman estimates that approximately 95 per cent of all gastric carcinomas occur in persons between the ages of 40 and 69. Gastric cancer, however, is not unknown in the young Two cases have been reported in which it was apparently congenital, and another in an infant 5 weeks of age. Such instances are, of course, curiosities, but the fact that gastric cancer does occur in the young should be borne in mind.

The incidence of cancer of the stomach as to sex has been variously estimated. At some of the larger clinics gastric cancer is supposed to be 3 or 4 times more common in men than in women. In my much smaller experience, however, this difference is not so great and in fact more nearly equal in the sexes.

Symptoms and Diagnosis

The symptoms of cancer of the stomach are often vague and indefinite. There is no pathognomonic sign. Physiologists have shown that there is a large "silent" area of the stomach along most of the greater curvature and in the cardiac portion of the stomach, and in this region a lesion causes no symptoms unless it is sufficiently large to produce mechanical obstruction or unless it perforates or bleeds. Along the lesser curvature and in the pyloric portion of the stomach, where obstruction may occur or where interference with peristalsis arises, symptoms are earlier. The lesser curvature of the stomach has been shown by Alvarez, Klein and others to be the origin of gastric peristalsis, which arises from the lesser curvature near the esophagus and proceeds in small ripples indistinguishable roentgenologically until they reach the middle of the body of the stomach, where contractions occur that can be seen by the X-ray. It has been shown experimentally that a large V-shaped section of the stomach with the base at the greater curvature and the apex near the lesser curvature, leaving the lesser curvature intact, can be removed with but little interference with gastric motor function, whereas if the lesser curvature itself is incised peristalsis of the stomach is markedly disarranged. It is for this reason, then, that many cases of cancer of the stomach arising in this "silent" area advance to such a stage that they are inoperable before marked symptoms occur. However, 66 per cent of all gastric cancers and 69 per cent of all benign tumors of the stomach occur in the pyloric portion of the stomach; and ulcers in the so-called pre-pyloric region, i.e., in the terminal inch of the stomach, are usually maligant (Camp).

A recent illuminating article on gastric carcinoma by Gaither gives an analysis of 245 cases of gastric carcinoma as demonstrated by operation and treated at Johns Hopkins Hospital during the past 10 years. The case histories in these patients have been analyzed and substantiated so far as possible. Gaither emphasizes the fact that not only is the clinical course of gastric cancer as stated in the text-books often erroneous, but many of the statements are absolutely misleading and may actually prevent an early diagnosis. Thus, cancer of the stomach is often remittent or intermittent in its symptoms, just as an ulcer would be, and the fact that the symptoms disappear entirely is by no means an assurance that the lesion is a benign peptic ulcer. According to Gaither, "(a) Local gastric symptoms, loss of appetite, cardialgia, eructation, pyrosis, nausea, vomiting, pain, distention, and variable types of discomfort are no worse in beginning carcinoma than in other gastric disease. (b) A latent stage is possible, during which time the process advances very slowly, with an utter absence of symptoms. (c) A general marasmus, or a variable anemia, may occur, with the gastric symptoms so wholly in abeyance as to be quite unrecognizable. (d) A beginning carcinoma may progress without definite symptoms; again, it is marked by ulcer symptoms, or symptoms of chronic gastric catarrh."

One of the most anticipated symptoms of gastric cancer is pain or discomfort. This may vary from sharp cramp-like pain to only a moderate discomfort, while in the cardiac end of the stomach cancer often advances to a stage in which the lumen is obstructed before pain or discomfort occurs. The pain is usually in the epigastrium, but may be in the back. In the latter instance, it would suggest a possibility of metastasis and a late stage of the disease. In 75 per cent of the cases that Gaither analyzed the pain was in the upper abdomen, chiefly in the epigastric area. The pain may be intermittent and relieved by food, as a hunger pain in a peptic ulcer, or it may be continuous. A history of intermittent pain of the periodic type that later is more constant, is said to be characteristic of a change into malignancy. This condition, however, may be found in a peptic ulcer that has slowly perforated, and is not necessarily confined to a malignant change, although it is suggestive of it.

Libman has called attention to the difference in symptoms by different patients having the same lesion. Thus, in the hyposensitive, either no symptoms may result from a gastric lesion that would cause symptoms of indigestion in the hypersensitive, or there may be substituted symptoms referred, for example, to the chest. Anorexia may be frequent, but it is by no means present in all cases. In the early stages of gastric carcinoma particularly, the appetite may be quite variable, and the patient may actually gain weight. Nausea and vomiting are common, although often there is no vomiting until late in the disease unless obstruction exists. Lesions along the greater curvature particularly may be free from vomiting throughout the course of the disease. The vomiting of blood is infrequent. Probably not more than 5 per cent of cases of gastric cancer actually vomit blood in any considerable amount, whereas in 20 per cent of peptic ulcers there is distinct hematemesis or melena. Occasionally, however, vomiting of a small amount of coffee-ground-like material occurs but even this is not as common in gastric cancer as it is supposed to be. Only about 50 per cent of gastric cancers have decided ulceration. Tarry stools are rather infrequent, but occult blood may be found in many cases in which neither hematemesis nor tarry stools are obvious. Loss of weight is common, but it should not be too much emphasized, since it is usually a late symptom. Anemia is often present, although this, too, may be a late symptom. However, it may arise from a large fungating cancer of a colloid type and low grade of malignancy or from a malignant polyp, and does not necessarily indicate that the disease is inoperable.

Examination of the gastric contents is often suggestive. Achlorhydria in otherwise normal persons is frequently found. It has been maintained that patients in otherwise good health may have achlorhydria for many years. Doubtless, this condition may be favorable to the development of cancer, and in some instances may be actually precancerous. It is difficult to understand, however, how it can exist indefinitely without some organic histologic change. In a prolonged gastritis which results in achlorhydria a causative factor of cancer by irritation is obvious, but in many cases of achlorhydria a histologic examination does not readily disclose any organic cellular defect. But when millions of acid-secreting parietal cells in the acini give forth no product, it would seem that at least a few of them become atrophied or affected in some organic way that may offer a focus for malignancy.

In well-advanced gastric cancer the most distinctive finding in a gastric analysis is a low percentage of hydrochloric acid or actual achlorhydria. The importance that was formerly attached to the presence of Boas-Oppler bacilli or of lactic acid has been found to be unjustified, since these may be found in obstructions not cancerous. In a few cases, also, cancer is accompained by a normal or high acidity, so that this criterion should not be depended upon too greatly. I had a patient, (Mr. C. G. W.) 31 years of age, with free hydrochloric acid of 74°, 73°, 54° and 64° in successive 20 minute specimens. Roentgenologic examination showed a rather extensive lesion in the stomach which was pronounced by Dr. Alexander B. Moore of Washington to be inoperable cancer. However, his youth and the high acid seemed to me to justify a partial gastrectomy. The patient made a satisfactory immediate recovery, but died 9 months after operation from recurrence of a small round cell carcinoma.

The physical examination may show a mass or some irregularity in the region of the stomach, particularly if the lesion is located in the pyloric portion; but higher up in the cardiac end a large cancer is often impossible to palpate. It was formerly said that a cancer of the stomach that can be palpated is inoperable, but this is not always true. The type of cancer, the grade of its malignancy, the accessibility of the growth as well as the condition of the patient should determine whether it can be excised.

Finally, and most important, is the diagnosis by roentgen-ray. It must be recalled, however, that when a gastric defect can be demonstrated roentgenologically, the disease has already advanced to a stage of excavation of the mucosa or of interference in some way with the muscular action of the wall of the stomach. It is essential to have a roentgenologist who is skilled in gastro-intestinal work. Frequently the derangement of a small area of motility which can be observed in the fluoroscopic examination and is scarcely perceptible in the plates will suggest a lesion. It is important not to delay X-ray examination in any case that is reasonably suspicious of cancer. All ulcers along the greater curvature that can be demonstrated roentgenologically are in the vast majority of cases cancerous. The difficulty of demonstrating a lesion in the cardiac end of the stomach is great and may require many careful examinations.

TREATMENT

Treatment may be to some extent preventive, because it is undoubtedly true that some cancers of the stomach spring from benign peptic ulcers. The proportion of peptic ulcers that become cancer is a moot question, some placing it as high as 25 to 30 per cent, and others as low as 1 or 2 per cent, but that there are such well authenticated cases is not doubted by any one who has studied this subject. It is also well known that adenomatous polyps of the stomach become cancerous, even when they are clinically benign. When some portions of a polyp may be benign in structure, other regions may show malignant cells—the so-called *carcinoma in situ* of Broders. Thus, McRoberts reports 5 cases of gastric polyp removed at operation which careful histologic examination showed that 4 showed definite carcinoma. In 1 case in which 3 polyps were removed by excision with the cautery, the patient returned 6½ years later with gastric carcinoma that was inoperable.

Naturally, the preventive treatment would consist in removing the polyps of the stomach when they can be demonstrated, and in the careful observation of a peptic ulcer of the stomach

The principles of treatment of gastric carcinoma are plain. Excision is the only satisfactory remedy. The difficulty is in securing the cases in the early stages. If every patient over 35 years of age who had indigestion or discomfort in the epigastric region would be examined thoroughly with a view to finding the cause of the symptoms, in the majority of cases the causes would be found to be extra-gastric or a benign condition. But if, after a careful general examination and treatment for 2 or 3 weeks the symptoms continued or their cause were not definitely ascertained, the patient should be referred to a roentgenologist who is skilled in this type of work. Then gastric cancer could often be picked up in the early stages. If the lesion proves to be a duodenal ulcer, it may be treated indefinitely by medical means, because here malignant degeneration is quite rare, but if it is a gastric ulcer the case should be observed with the greatest caution. It must be borne in mind that occasionally a duodenal ulcer may exist in conjunction with a gastric ulcer that may be cancerous, yet the symptoms of the duodenal ulcer may dominate. Rivers and Dry, of the Medical Department of the Mayo Clinic, say, "It seems to us that unless contra-indications are present it is usually safer to treat gastric ulcers surgically." A noted medical gastro-enterologist, Dr. William Gerry Morgan, believes that all cases of gastric peptic ulcer are surgical cases for immediate operation. This doubtless is the safest attitude in the long run, but if the ulcer is small it would seem justifiable to give medical treatment for a few weeks. If there is marked improvement in the clinical symptoms, and if repeated X-ray examinations show healing of the defect, the medical treatment may be continued, but it must be recalled that cancerous tissue may fill in the defect and for a while simulate healing. If, however, there is no improvement, the lesion should be considered as malignant and excised. Whether a cancer of the stomach is the result of degeneration of a peptic ulcer, or whether it is from the beginning an ulcerating cancer, makes very little clinical difference, since both are cancerous and should be treated alike. If we are reasonably sure that the disease is cancer, of course, there is no occasion for hesitation.

A partial gastrectomy, which is indicated when the growth is confined to the right portion of the stomach, should be preceded by a few days preliminary treatment. This consists in gastric lavage, in correcting dehydration, and, if there is marked anemia, in transfusion of blood. An important feature in the preliminary treatment is the administration of dilute hydrochloric acid, an excellent physiologic antiseptic, and which was first suggested for these cases by a member of our staff, Dr. W. H. Higgins. It adds to the safety of the operation by decreasing the chances of peritonitis.

An intraperitoneal vaccine may also be used to great advantage in preventing peritonitis. We prefer the vaccine of Steinberg, in which the killed colon bacillus is suspended in a solution of gum tragacanth and salt solution.

The selection of the anesthetic is important, because most of these patients are elderly and have low resistance. In patients over 60 years of age I prefer local anesthesia, after giving them a full dose of morphine and atrophine, or of hyoscine, morphine and cactine. When the peritoneal cavity is opened the retroperitoneal tissues are infiltrated with the novocain solution.

It is well in these cases to give intravenous dextrose in Ringer's solution, but if there is some arteriosclerosis this must be administered with care. Usually an intravenous cannula is inserted at the beginning of the operation, and the solution instilled according to the blood pressure. If the operation is prolonged and the patient's condition is not satisfactory, a transfusion of blood at the end of the operation is indicated.

In many cases, the modification of the Billroth I operation of partial gastrectomy which I have been using for 11 years can be adopted. This offers many advantages over the Billroth II or Polya type. It permits a direct union between the stomach and duodenum, which is the physiological condition. The lesser curvature of the stomach is fixed to the upper border of the duodenum, thus preserving the lesser curvature which initiates peristalsis in its normal relation to the duodenum. The duodenum is flared open and not infrequently an end-to-end union can be made, but if not, the redundant lower portion of the gastric stump is easily infolded. If the cardiac stump is lifted up and the adhesions which bind it are severed, or the gastric artery is divided, it will be found that the cardiac stump can be approximated to the duodenum much more frequently than is usually supposed. This leaves the field of operation confined to the stomach and the lesser peritoneal cavity. There is no occasion for opening the transverse mesocolon or for procedures that may convey either the cancer cells or the septic material to a region outside of that immediately affected by the partial gastrectomy.

As is well known, the intestinal mucosa increases in its sensitiveness to the gastric juice with its distance from the pylorus. While in cancer the secretion of acid is frequently low or absent, it may be resumed after removing the lesion, and there is always a possibility of jejunal ulcer. This has actually happened in a case of gastric cancer reported by Dr. Fordyce B. St. John, of New York, when a jejunal ulcer followed a resection by the Billroth II type of operation and the patient succumbed.

When this type of operation is impossible, the Hofmeister operation, in which only the lower portion of the gastric stump is united to the jejunum, seems advisable.

In linitis plastica, or when much of the cardiac end of the stomach is involved, a total gastrectomy is indicated. While such an extensive operation necessarily has a limited field, the improvement in the technic makes it more worthy of consideration. A long loop of jejunum is sutured to the posterior wall of the esophagus before the stomach is removed, the stomach is then cut away, and the union is completed. It seems better to unite the stump of the duodenum to the right side of the loop of jejunum, rather than close the duodenum. An entero-anastomosis is made between the lower limbs of the jejunal loop, and below this a jejunostomy with an oblique tube is done by the Witzel method for feeding.

In cases in which the cancer involves the pyloric end of the stomach but is distinctly inoperable, a type of Devine operation may be done, or a modification as adopted by Pack, of the Memorial Hospital in New York, in which the stomach is divided and complete rest is given to the pyloric end of the stomach, the site of the cancer.

Gastro-enterostomy has but little if any place in the therapy of gastric cancer. When a large fungating mass exists in the pyloric portion of the stomach, a partial gastrectomy by the modification of the Billroth I method described may give much comfort and prolong life, even if there are small metastases outside of the stomach that cannot be removed.

BIBLIOGRAPHY

Camp, J. D.: Discussion of paper by Holmes, G. W. and Hampton, A. O., The Incidence of Carcinoma in Certain Chronic Ulcerating Lesions of the Stomach. J. A. M. A., 1932, 99, 907.

Gaither, E. H.: Gastric Carcinoma: A Clinical Research. Preoperative Course and Postoperative Results. South. M. J., 1935, 28, 107.

Libman, E.: Observations on Individual Sensitiveness to Pain. J. A. M. A., 1934, 102, 335.

McRoberts, J. W.: Gastric Polyps. Proc. Staff Meet., Mayo Clin., 1933, 8, 685.

Morgan, W. G.: The End Results of Treatment for Peptic Ulcer. South. M. J., 1932, 25, 256.

Rivers, A. B., and Dry, T. J.: Differentiation of Benign and Malignant Gastric Ulcers. Arch. Surg., 1935, 30, 702.

Wilbur, D. L.: Carcinoma of the Stomach in Patients Less than 40 Years of Age. Report of 3 Cases. Proc. Staff Meet., Mayo Clin., 1933, 8, 609.

Malignant Tumors of the Gastro-intestinal Tract. III. Tumors of the Large Intestine.*—Summary:

1. Carcinoma of the colon is a very curable form of cancer if attacked early.

2. The most important symptoms are: (a) Obstruction, acute or chronic, partial or complete—may be temporary, and clear spontaneously. (b) Bleeding. (c) Alternating constipation and diarrhea. (d) Anemia (in cancer of the cecum and ascending colon). (e) Palpable mass in the course of the colon (not disappearing after laxatives or enemata). (f) Dyspepsia (in cases of cancer of the right colon). Any of these symptoms suggest the possibility of a cancer of the colon.

3. Any person having a change in bowel habits, especially an elderly person, should be studied completely—history, examination, blood and stool examination, and barium enema x-ray.

4. The treatment is chiefly surgical removal.

---

* Report of the Cancer Commission of the California Medical Association, from *California and Western Medicine, January, 1935.*

THE DIAGNOSIS AND TREATMENT OF OCULAR TUBERCULOSIS*†

W. H. Wilmer, M.D., F.A.C.S.
Professor Emeritus of Ophthalmology, Georgetown University School of Medicine

As early as 1707, Maitre-Jan (Traite des Maladies de L'Oeil) described pustules of the eye, in contradistinction to phlyctenules, which were probably tuberculous. A hundred years later Autenrieth (Versuche fur die praktische Heilkunde aus den clinischen Anstalten von Tubingen—1807–1808) reported a tubercle of the choroid. Two cases of a similar nature were reported by J. C. Saunders in 1811 in his posthumous work—"Treatise on Some Practical Points Relating to Diseases of the Eye." There followed a number of descriptions of ocular tuberculosis, including that of Manz in 1858. Although this condition was thus early reported, its importance has been recognized only in the last two decades.

The brief time allowed for this vast subject renders it necessary for me to draw chiefly from my personal experience rather than from the valuable contributions of my colleagues.

Well recognized facts are: (a) Tuberculosis may involve directly or indirectly every tissue of the eye or its adnexa, but it has a predilection for sclera, the uveal tract, and the retinal vessels; (b) serious tuberculous eye lesions often occur in persons otherwise strong and healthy; (c) they rarely occur in persons with active pulmonary tuberculosis, but when they do appear under such circumstances, the lesions are especially disastrous; (d) tuberculosis usually involves the eye secondarily through the blood or lymph streams; occasionally the eyelids, the conjunctiva, or the cornea, are affected primarily.

Not infrequently, patients with ocular tuberculosis, who have a marked sensitivity to tuberculin, exhibit the following syndrome: A feeling of lassitude and malaise, accompanied by low blood pressure, mild leukocytosis and a lowered metabolic rate; occasionally a diminished blood calcium content also.

Bacilli are not always found in the ocular lesion; the microscopic picture usually shows giant and epithelioid cells surrounded by a peripheral zone of lymphoid cells. Only occasionally is there caseation. When the bacilli are not found, the lesion may be considered as a focal allergic reaction of sensitized tissue to tuberculo-proteins.

No other living organ offers such an inviting field for the investigation of tuberculous processes as the eye because of its accessibility to direct observation.

Types and Illustrative Cases

I will discuss only a few of the many ocular manifestations of tuberculosis.

1. *Nodular Scleritis.* The lesion may involve the sclera around the corneal limbus, or the infiltration may be in the tendonous insertions of the extra-ocular muscles. This condition is often associated with inflammation of the anterior part of the uveal tract. If neglected, the cornea itself is later involved with disastrous results. Since the therapeutic use of tuberculin in this affection, the ultimate prognosis has become good.

2. *Tuberculous Nodules of the Episclera and Eyelids.* An illustrative case is that of a 56-year old woman, who 18 months prior to examination noticed puffiness of the eyelids and painless swelling over the eye muscles. Physical examination was negative except for overweight and great fatigability. Laboratory reports were negative except for a basal metabolic rate of minus 6. The tuberculin test was positive to 1/100 mg. On the right side there were swellings over both eyelids, with a lump on the nasal portion of the upper lid, and two on the lower lid. There were nodules over the superior, external and internal recti muscles. On the left side there was a nodule in the nasal portion of the upper eyelid. In the right eye there were also slight posterior synechiae and vitreous opacities, while the left eye itself was normal. The pathological report of the nodule excised from the

---

* Read before the Annual Scientific Assembly of the Society, May 1, 1935.

† The cases were illustrated mostly by slides in color which are impossible to reproduce here.

internal rectus muscle was "nodule sharply circumscribed, epithelioid cells with numerous giant cells, surrounding lymphocytic infiltration. No caseation. No bacilli found. The nodule from the lower lid showed similar tissue, with numerous spots of caseation. No bacilli." The patient was placed upon tuberculin and thyroid extract treatment. Within 2½ months the feeling of lassitude had disappeared, and the nodules, except that on the lower eyelid, had vanished. The patient has been entirely well over 2 years. (Note: This case was reported before the American Opthalmological Society in 1933.)

There are many forms of intra-ocular tuberculosis, but I will illustrate only a few.

1. *Central Choroidoretinitis*, as illustrated in a 40-year old man. The vision of the left eye had been lost for the past year, and that of the right began to fail 6 months before. The right eye showed a discrete nodule in the macular region, of the type often referred to as "solitary tubercle." Medical examination was negative, except for an old fibrosis in the apices of both lungs. The blood pressure was 96/64 Laboratory findings were negative, except for a basal metabolic rate of minus 21.5 and a positive tuberculin test to 1/1000 mg. There was marked improvement of the eye under tuberculin therapy.

2. *Central Choroidoretinitis Associated with Uveitis*, occuring in the left eye of a 23-year old woman. At 12 years of age a tuberculous osteomyelitis resulted from an injury to the right leg. During the next 9 years she underwent 19 operations for widely disseminated osteomyelitis. During the previous month she had noticed that the vision in the left eye had been impaired. Medical examination was negative, except for the scars following the many former operations. The blood pressure was 102/70. There was slight leukocytosis. The basal metabolic rate was minus 6. The tuberculin test was positive to 1/1000 mg. At the first examination the left eye showed circumcorneal injection, deposits on the posterior corneal surface and many vitreous opacities. The fundus was indistinctly seen through the vitreous haze, but there was a large active exudation in the macular region. Five months after the commencement of tuberculin therapy the vitreous had cleared considerably, so that the fundus details were quite sharp. The macular exudation was still slightly active, with beginning scarring around the periphery. Four years later this inflammation had entirely subsided and a patch of pigmented and atrophic choroidoretinitis could now be seen in the macular region, with no evidence of activity. During this period the patient's general health improved, with a gain in weight, and there has been no recurrence of the osteomyelitis. There have been no exacerbations of the eye lesion, and the other eye has remained normal. The skin sensitivity to tuberculin has been reduced from 1/1000 to 1/100 mg. The initial therapeutic dose of 1/100,000 mg. of tuberculin has been increased to 100 mg. During this period there has been no general or focal reaction.

3. *Diffuse Exudative Choroidoretinitis.* This occurred in both eyes of a negro youth, 16 years old, and was of a rather unusual type of ocular tuberculosis associated with other tuberculous foci. The fundus changes were so marked that at first brain tumor was suspected by the medical department of the Johns Hopkins Hospital. For 3 months previous to admission, there had been failure of vision in both eyes, associated with headaches. Medical examination showed a bilateral tuberculous epididymitis and infiltration at the base of the lungs, which suggested old tuberculosis. The blood pressure was 122/78. Blood chemistry and Wassermann were negative. Spinal fluid was 250 mm. of water. Ventriculograms were negative. The tuberculin test was positive to 1.0 mg. This last test is especially interesting because the old tuberculous affection of the lungs, the tuberculous epididymitis and the tuberculosis of the eyes are accompanied by such a slight sensitivity to tuberculin. This very mild allergic skin reaction is probably due to the exhaustion of the cellular antibodies by the active and general tuberculous infection. The fundus picture was that of an extensive exudation into the retina and choroid, obliterating the outline of the disk. The arteries were occluded

in places, and portions of the veins thrombosed, causing scattered hemorrhages. With better hygiene and tuberculin the eyes and the general condition improved.

4. *Discrete Choroidoretinitis, Recurrent.* The patient was a 41-year old man, whose father was blind from choroiditis. For 10 years there had been recurrent attacks of inflammation in both eyes. The vision in the left eye had been lost, and that of the right eye had become much impaired. The tuberculin test showed a sensitivity to 1/1000 mg. The fundus picture in the right eye showed scattered patches of old choroidoretinitis of various ages in the perimacular region, some of them being of quite recent origin. Over a period of 6 years the skin sensitivity to tuberculin was reduced from 1/1000 to 1/10 mg. The present therapeutic dose of tuberculin is 100 mg. once a week. The patient's general health has improved so much and the eye lesions have remained relatively so quiescent that the patient begged to be allowed to continue the tuberculin.

5. *Recurrent Hemorrhages in the Vitreous and Retina.* Before the therapeutic use of tuberculin, these cases presented a bad prognosis. In the last 4 cases that I have been able to follow closely for many years, all have been males, the ages varying from 19 to 37 years. Of these, only 1 was over 25. In the oldest patient the blood pressure was 122/70, the blood calcium 8.86 mg. per cent, the leukocytes 8,400, B.M.R. minus 21, and the tuberculin test positive to 1/1000 mg. In 4 instances, it required from 2 to 3 years of constant observation and treatment before the lesions were quiescent and the eyes safe. The ultimate results were: One patient recovered with 20/40 vision in 1 eye; 2 with normal vision in 1 eye; 1 with normal vision in both eyes.

Diagnosis

After a very careful study of the clinical nature of the eye lesion, thorough physical examinations and laboratory tests are made to exclude all distant foci of infection and to exclude syphilis. Then the patient's sensitivity to tuberculin is tested.

For diagnostic purposes, I use Koch's old Tuberculin (o.T.). This is injected intracutaneously with a tuberculin syringe. In the first injection 0.0001 or 0.001 mg. is used. If there is no reaction after 48 hours, the second injection of 0.01 mg. is given. If there is still no reaction, additional injections are given until it is determined that the patient will not react to 1 milligram. A control solution of 1:1000 dilution of glycerine broth media should be used. A positive reaction is indicated by the area of infiltration and hyperemia surrounding the site of injection. The hypersensitivity is evaluated by the degree of dilution of the tuberculin and by the extent of the reaction. It is an interesting fact that in a number of cases treated with tuberculin over a long period of time, the skin sensitivity has diminished from 1/1000 to 1 mg Also other tuberculous lesions, not pulmonary, have healed.

Treatment

There are 2 diametrically opposed schools of thought in regard to tuberculous lesions and the relation of tuberculin to them. One school believes that there is a close relation of allergy to resistance; that the focal or allergic reaction of tissues is allied to immunity; that these reactions stimulate fibrosis and fix the bacilli. The other school believes that allergy is not responsible for immunity; that immunity is due to some unknown factor; that the value of tuberculin consists in desensitizing the tissues against the necrotizing and caseating effect of the tuberculoproteins and in aiding nature in removing the allergic factor. This view agrees with my clinical experience.

All sources of focal infection are removed as far as possible, such as teeth with apical abscesses, infected tonsils and sinuses, etc. When both the tuberculin and Wassermann reactions are positive and the clinical appearance of the eye lesions is syphilitic rather than tuberculous, anti-syphilitic treatment takes precedence over tuberculin.

The appropriate local treatments are important, such as atropin in iritis, hot applications etc. In external tuberculous affections of the eye, radiation with violet, and ultraviolet, light is indicated. Where there is a markedly low basal metabolic rate, thyroid extract is advised.

Therapeutically, Denys' Bouillon Filtrate (B.F.) is injected into the deltoid muscle. The initial dose in serious intra-ocular lesions is usually 0.000,001 mg. The dose is very gradually increased every 4 days over a period of 6 to 8 months, according to the patient's tolerance. When the dose reaches 1.0 mg., the injections are given once a week. In obstinate cases the dose is increased to 100 mg., and in rare instances to 200 mg. After the completion of the course, the skin is tested again, and every effort is made to reach a point of desensitization. When the patient has become desensitized, the injections are discontinued. But, as a matter of safety, in these cases, the skin sensitivity should be tested about every 6 months, since occasionally a return of the skin allergy is accompanied by a "flare-up" of the previously quiescent ocular lesion. A close correlation has been found between the occurrence of these "flare-ups" and the return of the skin hypersensitivity.

During the course of the injections it is necessary to watch closely both the ocular lesion and the site of injection. If either of these 2 regions should show any evidence of reaction, the injected doses should be cut down, and later gradually increased.

For many years I have objected to the careless use of large doses of tuberculin for diagnostic purposes; first, because of the great danger of a disastrous focal reaction in the eye; and secondly, because only by a quantitative method of testing with small doses can an exact estimate of the patient's hypersensitivity be reached.

It is necessary to realize the potency of minute doses of antigens in the therapeutic use of tuberculin. The beneficial effects of tuberculin, properly used, have been amply demonstrated clinically; and tuberculin should find a more prominent place in the ophthalmologist's armamentarium, if both its virtues and its dangers are properly evaluated. But the appropriate food, rest, hygiene and sunshine cannot be ignored, and the care of the body as a whole must be considered.

No regular program can be followed in a hard and fast manner in all cases; for patients differ widely in their reactivity, so that in some instances the dose should be increased much more slowly than in others. But the object is to desensitize the patient as rapidly as possible without any recognizable reaction.

Ophthalmology would lose much of its delight for me, were I deprived of the therapeutic use of tuberculin. Every day of my life, I have a feeling of deep gratitude in my heart for that great scientist—Robert Koch.

THE CLINICAL FEATURES OF GONOCOCCAL ARTHRITIS*

Observations in Eighty-five Cases

Walter K. Myers, M.D.
Instructor in Clinical Medicine,
and
Henry B. Gwynn, M.D.
Fellow in Clinical Medicine, Georgetown University School of Medicine

Gonococcal infection is one of the more common causes of arthritis. There are occasions when arthritis due to the Gonococcus may appear months and years after the primary genitourinary infection. Rarely, gonococcal arthritis may manifest itself after the original local lesions have apparently healed. The diagnosis may not, at times, be easy. Acute gonococcal arthritis may be confused with rheumatic fever; chronic gonococcal arthritis is to be differentiated from rheumatoid (atrophic) arthritis. We have analyzed a series of 85 cases of gonococcal arthritis. Sixty-nine cases were seen at the Boston City Hospital and formed the basis of a former report (Keefer and Myers). To these have been added 16 cases which were observed at the Gallinger Municipal Hospital.

The youngest of this series was 16 years of age;

---

* Read before the Annual Scientific Assembly of the Society, May 2, 1935.

the oldest was 70 years of age. Forty-four of the 85 patients were between 20 and 40 years of age.

There were 65 males and 20 females.

Sixty-seven were white, 17 were negroes and 1 was an American Indian.

The diagnosis of gonococcal arthritis was made on the basis of (1) a history of a recent gonococcal infection of the genito-urinary tract; (2) the presence of a localized gonococcal infection as evidenced by symptoms, signs and bacteriological examination; (3) the presence of gonococci in the synovial fluid; and (4) a positive gonococcal complement-fixation reaction in the blood serum.

In the male patients it was usual to find involvement of the posterior urethra and prostate, at least. Occasionally there was an obvious relationship between the onset of arthritis and the extension of the infection, e.g., to the prostate or epididymis. Forty-four patients had had previous attacks of gonorrhea; in 9 additional patients it was probable that there had been infection previous to the attack under observation.

No definite relationship between the onset of arthritis and the genito-urinary infection could be established. Arthritis was observed to appear at any time after the onset of symptoms of the local process. In 3 cases in which gonococci were recovered from metastatic lesions all traces of the local infection had disappeared.

Twenty-eight of these patients had had previous symptoms referable to the joint structures. Twenty of these had in all probability had gonococcal arthritis. Three patients had had attacks of rheumatic fever. In the remaining 5 patients the nature of the joint process could not be established.

Gonococcal arthritis usually manifests itself by pain in several joints. The number and location of the joints involved are subject to great variation. At the onset the pain is dull and aching in character and is exaggerated by motion. Subsequently, one, or more often several joints may show swelling, increased local temperature, redness and marked tenderness. The process involves the synovial tissues, which become inflamed. There may be an accumulation of the synovial fluid, so that varying amounts may be aspirated. The examination of the synovial fluid may yield information of considerable value in the etiological diagnosis of arthritis (Myers, Keefer and Holmes; Keefer, Myers and Holmes). From 5 to 165 cubic centimeters of fluid were aspirated for examination from 44 of these patients. Gonococci were recovered from the fluids of 11 patients. The gonococcal complement-fixation reaction and the Wassermann reaction are of aid. However, the gonococcal complement-fixation reaction of the synovial fluid is of less value than that of the blood serum (Myers and Keefer). Cytological studies of the synovial fluid were found to be an aid in differentiating between an infected and an uninfected fluid and served as a rough aid in the prognosis. In 16 patients there was a re-accumulation of fluid, so that subsequent aspirations were indicated. Following aspiration the symptoms of pain in the affected joint were greatly lessened.

Muscular atrophy frequently occurred rapidly and was marked. Joint deformities due to contractures of the capsular tissues were occasionally seen. In only 2 patients of this series was there evidence on physical or roentgenological examination of destruction of the joint surfaces.

There was fever at times in most of the cases. In many the febrile course was prolonged with elevations to 99°F. or 100°F. In a few patients the temperature occasionally reached 103°F. or 104°F.

The leukocyte count was increased, in some instances to as high as 23,000 per cubic millimeter. The increase was chiefly in the polymorphonuclear cells. A moderately severe anemia developed in the more chronic cases.

The sedimentation rate was increased in all cases. Oppel, Myers and Keefer have noted that the sedimentation rate has no diagnostic significance in arthritis but is helpful only in following the course of the disease.

The gonococcal complement-fixation reaction of the blood serum of patients with arthritis is an important routine diagnostic procedure (Myers and Keefer). Of 43 patients who had proven gonococcal arthritis the reaction was positive in

86 per cent. Of 71 patients who had joint involvement not due to the gonococcus only 2 patients gave isolated "falsely positive" reactions.

The incidence of involvement of the various joints in the patients of this series is summarized in Table I. In only 11 cases was the disease monarticular. The frequency with which the disease was polyarticular is striking. Any or all of the joints may be simultaneously or progressively attacked during the course of an infection.

It is important to point out the frequency with which the process may involve the tendon sheaths about a joint rather than the joint capsule proper. This is particularly true for involvement of the ankle, wrist, metacarpophalangeal and metatarsophalangeal articulations. Tenosynovitis was encountered in 48 per cent of the patients of this series. The clinical features of tenosynovitis are quite striking. The skin over the tendons is swollen, hot and tense, and pain on active or passive movement of the affected part is severe.

TABLE I

Joints Involved in 85 Cases of Gonococcal Arthritis

Polyarthritis	74
Monarthritis:	
Knee	9
Wrist	1
Elbow	1

Knee	72 (4)*	Lumbar spine	12
Ankle	46 (34)*	Sacro-iliac	9
Wrist	33 (20)*	Heel (spur)	7
Metacarpophalangeal	25 (8)*	Cervical spine	5
Shoulder	23	Temporomandibular	3
Finger	21 (5)*	Costosternal	2
Metatarsophalangeal	19 (7)*	Sternoclavicular	2
Elbows	18	Dorsal spine	2
Hips	18	Cricothyroid	2
Toe	15	Olecrenon bursa	2

* Tenosynovitis.

At times various other complications of gonococcal infection are present. The incidence of catarrhal conjunctivitis, iritis and endocarditis as well as of tenosynovitis in this series is summarized in Table II.

The conjunctival involvement in these patients is termed metastatic catarrhal conjunctivitis in contrast with purulent conjunctivitis, when gonococci are recovered in the exudate. Catarrhal conjunctivitis in patients with gonococcal arthritis is of some diagnostic value. The conjunctival involvement occurs before or simultaneously with the onset of arthritis. Symptoms of burning, smarting, lacrimation and photophobia are associated with injection of the conjunctivae, swelling of the eyelids and edema of the ocular conjunctivae. No gonococci are present in repeated stained smears of the scanty mucoid exudate. The inflammation subsides within 2 weeks.

Iritis, fortunately, occurs in a smaller number of patients. In 3 patients of this series iritis with pain, photophobia, visual disturbances and some permanent visual impairment was observed.

TABLE II

Complications in Association with Gonococcal Arthritis (85 Cases)

	Number of Cases	Percentage
Tenosynovitis	41	48
Catarrhal Conjunctivitis	17	20
Iritis	3	3.5
Ulcerative Endocarditis	2	2.4

Acute ulcerative endocarditis of the aortic valves occurred in 2 patients. Three additional patients died. In 1, death resulted from progressively severe gonococcal infection. One patient died as a result of intercurrent lobar pneumonia. The fifth patient died following streptococcus septicemia.

The prognosis in a given patient with gonococcal arthritis is very difficult insofar as the outcome is concerned. The extreme variation in the course of the disease, the lack of information concerning the immunological response to gonococcal infection, and the question of re-infection and recurrence of the genito-urinary infection are factors which are involved. Of 33 patients who were followed for a period of 18 months or longer only 9, or 27 per cent, remained well.

Summary and Conclusions

1. The clinical features of gonococcal arthritis as observed in 85 cases have been presented.
2. The bacteriological and cytological examin-

ation of the synovial fluid and the gonococcal complement-fixation reaction of the blood serum are valuable aids in diagnosis.

3. Gonococcal arthritis is commonly a polyarthritis.

4. Tenosynovitis and metastatic catarrhal conjunctivitis and, less commonly, iritis and ulcerative endocarditis are associated complications which occur with gonococcal arthritis. The presence of such lesions may be suggestive features in the diagnosis of gonococcal arthritis.

BIBLIOGRAPHY

Keefer, C. S., and Myers, W. K.: Gonococcal Arthritis: A Clinical Study of 69 Cases. Ann. Int. Med., 1934, 8, 591.

Keefer, C. S., Myers, W. K., and Holmes, W. F., Jr.: Characteristics of the Synovial Fluid in Various Types of Arthritis; Study of 90 Cases. Arch. Int. Med., 1934, **54**, 872:

Myers, W. K., Keefer, C. S., and Holmes, W. F., Jr.: The Characteristics of the Synovial Fluid in Gonococcal Arthritis. J. Clin. Investigation, 1934, **13**, 767.

Myers, W. K., and Keefer, C. S.: The Gonococcal Complement-Fixation Test in the Blood and Synovial Fluid of Patients with Arthritis. New England J. Med., 1934, **211**, 101.

Oppel, T. W., Myers, W. K., and Keefer, C. S.: Sedimentation Rate of Red Blood Cells in Various Types of Arthritis. J. Clin. Investigation, 1933, **12**, 291.

Vaccinations Against Polomyelitis.—William H. Park, M.D.

. . . . Although there is much about poliomyelitis that we do not know, our knowledge concerning the disease has increased quite a bit in the last few years. We know that the disease is caused by germs which are too small to be seen through the most powerful microscope. It is believed that these germs are passed from person to person, and are not carried by insects. The disease attacks children primarily and especially those under five. About 80 per cent or more adults are immune. Research work to determine the reasons for this immunity is now being carried on.

During 1934, the research laboratory of the City's Health Department and the College of Medicine of New York University, announced the development of an anti-poliomyelitis vaccine. This was first tested on monkeys, then on volunteers among the laboratory workers, and, finally, upon a group of children whose family physicians requested it. The results seem to be promising. Dr. Maurice Brodie, my assistant, who perfected this vaccine, is continuing his nation-wide experiment of applying it. When a larger number of children have been immunized and watched for a period of two or three years, it will be possible to determine how much that is effective has been accomplished.

Among other places, this vaccine was sent by the City and University Laboratories during the epidemic there last fall and winter, to the Health Officer of Kern County, California. About 1,300 children were immunized and not one of them came down with the disease. For the present, however, it is an impossibility to vaccinate all the children in the United States against poliomyelitis. There is not enough vaccine for this purpose and there are too many things that still have to be found out about the disease.—*Vol. I, No. 1, June–July, 1935, Neighborhood Health*, a New York City Health Department publication.

ENDOMETRIOSIS*

Report of Two Cases

Jerome F. Crowley, M.D.

Associate Professor of Obstetrics and Associate Professor of Gynecology, Georgetown University School of Medicine

Endometriosis is a term introduced by Sampson to include a variety of adenomatous lesions of the female pelvis, and in other locations, the histological and functional characteristics of which are identical with those of the endometrium.

Many theories have been advanced to explain the occurrence of tissue resembling endometrium in locations other than in the uterine cavity. Chief among these are congenital displacement of the wolffian and the mullerian systems, serosal metaplasia and the transtubal implantation theory of Sampson.

Sampson's theory of the origin of endometriosis has met with almost universal acceptance in this country. According to him uterine and tubal epithelium may at times escape during menstruation into the peritoneal cavity through the fallopian tubes. This transplanted tissue has the ability to penetrate the surface on which it finds lodgement, and with continued growth, adenoma may develop wherever the epithelium falls on suitable "soil." These adenomata react to the internal secretion during menstruation so that they enlarge with each menstrual period. Sampson believes that these transplants may remain superficial on the ovary, intestine or the peritoneum of the cul de sac with the formation of adhesions, or that there may be deep invasion with the formation of the typical chocolate cysts of the ovary.

A summary of the facts and proofs of his belief are as follows:

1. They occur frequently.

2. They occur in women and not in men, and develop during the menstrual cycle.

3. The histological structure of the endo-

---

* Read before the Annual Scientific Assembly of the Society, May 1, 1935.

metrial elements in these transplants is identical with that found in the uterine wall by the invasion of the mucosa lining its cavity.

4. The tubes are usually patent and allow the escape of regurgitated blood during menstruation. This fact has been observed on several occasions.

5. The uteri in these cases are frequently retroverted and contain tumors, a fact which would favor backflow of menstrual blood.

6. The early implants are found on structures in the pelvis which would naturally be reached by blood escaping through the tubes.

7. Similar growths have been observed in the scar of the abdominal incision of patients in whom the uterine cavity has been opened.

The most prominent characteristic of endometriosis is the presence of blood, which is sometimes fresh but more often is undergoing disintegration. If the endometrial-like epithelium grows only on the surface of an organ the blood may be cast off and absorbed by the surrounding structures, or as in lesions of the abdominal and vaginal walls, the blood may be extruded from the body entirely. The more usual condition encountered is the formation of cysts which vary in size from a few millimeters to several centimeters in diameter.

Physiological response to hormonal stimulation demonstrates the close relationship to normal endometrium. Engorgement occurs at the height of menstruation, to be followed by regression, the cycle recurring periodically until the menopause.

While the gross pathologic manifestations of endometriosis differ in various locations, the microscopic picture in typical instances presents a histologic structure identical with that of the uterine mucosa, the picture varying in appearance according to the phase of the menstrual cycle in which it is examined.

Clinically, endometriosis occurs most frequently in the following locations: Uterus, tubes, ovaries, peritoneal surfaces below the umbilicus, the pelvic ligaments, the rectovaginal and the vesicovaginal septa, the umbilicus and laparotomy scars. Keen, in reporting 119 cases, gives the frequency of location as follows: Ovary 110, rectovaginal septum 6, umbilicus 2, and laparotomy scar 1.

I report here 2 cases of endometriosis, 1 of an abdominal incision and 1 of the umbilicus.

REPORT OF CASES

Case 1: A colored woman, admitted to Gallinger Municipal Hospital on November 26, 1933, had had 3½ years before a partial hysterectomy performed in Memphis, Tenn., for a fibroid tumor. Following operation, patient had no symptoms and menstruated regularly without disturbance. Two and one-half years following her operation her attention was called to a tender hyperemic swelling located in the lower end of the old abdominal incision, which would enlarge and bleed with each menstruation and gradually retrogress with the cessation of the menses. Examination disclosed a mass about 2 cm. in diameter which was tender, firm and slightly nodular, incorporated in the lower one-third of an old midline incision. In the center of the mass was a sinus from which blood could be expressed. A biopsy was performed. Report of pathologist: Microscopic section through this tissue shows a normal surface epithelium on the surface of which is seen some scattered areas of free blood. Beneath the epithelium the dermal layer is very greatly thickened and composed of dense fibrous connective tissue. Scattered through this area are seen some gland-like structures, apparently implantations from a uterine mucosa. These gland-like structures resemble uterine mucosal glands, and in the lumen of many of them blood is seen. This is a definite endometriosis of the abdominal scar.

Case 2: Mrs. E. L. H., a white woman, aged 28 years, was referred to me on December 19, 1932. She stated that she was about 4½ months pregnant. Her last menstrual period was May 4, 1932, and the estimated date of confinement was February 11, 1933. Her pregnancy to date and the obstetrical examination were essentially normal. Abdominal examination disclosed a granulating mass occupying the umbilicus. The following history was then obtained. About 5 years before the patient had noticed some bleeding from the umbilicus, associated with tenderness in that region. This bleeding and tenderness were definitely associated with the menstrual cycle, occurring with each menstrual period and subsiding as the flow stopped. The tumor mass would increase in size with each menses and retrogress as the flow was completed. The patient had simply used a surgical dressing to protect her clothing and did not seek medical advice because of this condition. Since becoming pregnant the tumor has increased appreciably in size and was constantly tender and painful, bleeding upon the slightest irritation. A surgical dressing was constantly used. The patient refused to allow a biopsy. She is now under my care for a second pregnancy. The history and findings, before and during this pregnancy, are the same as before and during her previous pregnancy. This is clinically a case of endometriosis of the umbilicus.

The symptomatology of endometriosis is dependent upon the location of the lesion. The subjective symptoms of intraperitoneal endometriosis depend upon several factors, particularly the extent of the lesion and the nature of the complicating pathology. The cardinal symptoms are hemorrhage, sterility, sacral backache and pain. The hemorrhage usually occurs with menstruation, and is characterized by its sudden onset. Exaggeration of pain or its occurrence only at the time of or shortly before menstruation is characteristic.

The diagnosis is usually established by the clinical picture as a whole. Such a symptom complex is summarized by Keen as follows:

1. Age, between 25 years and the menopause.
2. Sterility, absolute or relative.
3. Abnormal menstruation, usually menorrhagia.
4. Acquired dysmenorrhea.
5. Sacral backache.
6. Lower abdominal discomfort, which is increased at the time of menstruation.
7. Pain in the rectum and bladder.

The uterus usually contains myomata, and is found retroflexed and adherent in the cul de sac. The ectopic endometrial growths are easily palpated on vaginal examination.

Spontaneous regression of endometrial tumors, which are not treated, may be expected after the menopause, but until then these patients, if their tumors are of any size and extent, are likely to be invalids, if not actually bedridden. Surgery, on the other hand, offers every prospect for cure, the percentage of success depending upon the type of surgery which is practiced. About one third of those treated by conservative surgery are relieved but not cured, whereas radical surgery results in a complete cure in every instance.

Ovarian function is essential to the activity and proliferation of all lesions included under endometriosis. Conversely, cessation of activity and progressive atrophy of these lesions follow ablation of ovarian function; in other words, the progress or regression of the lesion depends upon the presence or absence of hormonal stimulation from the ovary. These facts suggest 2 methods of treatment; first, complete or partial removal or déstruction of the growth, and second, removal or destruction of the ovaries. Endometriomata are the outstanding exception to the rule that pelvic disturbances in young women may be treated expectantly, because the lesions will grow progressively worse without treatment.

Generally speaking, surgery should be as conservative as possible in young women, although the patient should clearly understand, before operation, that if conservation is practiced she must be prepared to risk a second operation. If the endometriosis is very extensive, involving all the pelvic organs and filling the cavity with adhesions, bilateral oophorectomy is indicated, regardless of the age of the patient. Isolated growths of the ligaments, omentum, umbilicus and abdominal wall can frequently be removed *in toto*, care being used to see that none of the original tumor is left, for the growths have the power to reproduce themselves. Growths of the rectovaginal septum should be left undisturbed and treated by bilateral oophorectomy.

Radium and X-ray should never be used in the treatment of endometriomata. The symptoms from these growths are usually due to adhesions which are the result of the endometriosis, rather than the endometriosis itself. Radiotherapy would have no curative effect upon these adhesions and might even aggravate them. On the other hand, this would be a most radical form of treatment in young women in whom surgery offers, at least, a chance of conservation.

Study of Applicants for Admission to the 1934 Freshman Class of Seventy-nine Medical Schools.—

TABLE I. Summary of Totals of Applicants and Applications and Disposition in 1933 and 1934

	1933	*1934*
Number of applications	29,705	32,321
Applications accepted	9,123	8,854
Number of applicants	12,128	12,779
Single applicants	7,269	7,623
Accepted	4,434 (60 9%)	4,433 (58.1%)
Rejected	2,835	3,190
Multiple applicants	4,859	5,156
Accepted	3,109 (63 1%)	2,986 (57.9%)
Rejected	1,750	2,170
Total applicants accepted	7,543 (62 1%)	7,419 (57.9%)
Total applicants rejected	4,585 (37.9%)	5,360 (42.1%)

Attention must be called to the fact that all accepted applicants do not matriculate. In 1933, only 88 per cent (6,650) of the 7,550 applicants accepted were reported as having matriculated. Of the 7,419 applicants accepted in 1934, 6,702, or 90.3 per cent matriculated, the largest freshman class of all time.—*Extract from article by* Fred C. Zapffe, Chicago, Illinois, *Journal of the Association of American Medical Colleges, July, 1935, p. 203.*

THE SYSTEMATIC DIAGNOSIS OF THE ANEMIAS*

John Minor, M.D.

Washington

If a patient is found to have an anemia, that is, "a decrease of the hemoglobin of the blood below the level of normal," what steps must be taken to establish the cause and the hematologic character of this anemia, and what therapeutic aid may one expect from such diagnostic efforts?

So much fundamental work has been done in the past 10 years on the anemias that new terminology and new classifications have become essential to express and explain the newer concepts and to enable us to think clearly, as we cannot now in the older language, about them. As Minot says in an editorial note, "The purely pictorial and descriptive study of the blood is rapidly becoming replaced by an approach which indicates a distinctly physiologic point of view. The blood cells are regarded no longer merely as elements with interesting variations in age, size and shape, but as objects reflecting the results of certain definite chemical processes in the bone marrow and elsewhere." It is clear, therefore, that the newer language of blood diseases represents a real advance, not a mere change in phraseology.

The real foundation of the modern concepts is found in Whipple's fundamental work, his painstaking and brilliant analysis of the building stones of blood formation, and Sabin's and others' work on the development of the blood. These are the bases on which today's ideas of the anemias rest. The edifice resting on this solid foundation has had much added to it by the clinical application of these ideas in the hands of Minot, Murphy and others.

It is, of course, a mistake to think that all the older work on the anemias has been discarded; the facts are by no means all new. For example, the hematocrit for blood volume determination has been known since its invention by Hedin in 1890 and was practically put aside for many years, but now it is considered one of the most useful instruments we have. They have only been fitted into place in a more rational, more clearly seen structure, and better correlated with one another, with the same new facts added. Most important is the relating of the changes found to the life history of the blood cells which the work of Sabin and others has done much to clarify.

It is necessary to classify the anemias both as to their causes (so far as can be determined) and as to the hematologic pictures; it requires such a dual classification to properly evaluate the situation in a given case. Anemia may be due to:

I. Increased blood loss
  (a) Mechanical loss from hemorrhage, as in trauma, peptic ulcer, uterine bleeding, disturbance in coagulation of the blood, as in hemophilia;
  (b) Accelerated destruction of blood
    1. Chronic hemolytic ictero anemia
    2. Hemolytic anemia due to infections and poisons, e.g., pneumonia, streptococcus septicemia, etc.
II. Decreased blood formation
  (a) From depression of bone-marrow function
    1. Aplastic anemia (idiopathic)
    2. Cachexia, chronic intoxication, metabolic disturbances (as myxedema), radioactive substances, malignancy, myelophthisis in leukemia and metastatic tumor
  (b) Deficiency in specific substances necessary for normal red cell formation
    1. Deficiency in specific anti-anemic factor of liver
    2. Deficiency in iron and other unknown substances necessary for hemoglobin formation in chronic hemorrhage, dietary deficiency and disturbance of utilization.

The above classification includes all the known types of anemia, but clearly, without the blood picture from the laboratory standpoint, gives us but an ill-clothed skeleton.

---

* Read before the Annual Scientific Assembly, May 1, 1935.

What do we need beyond the time-honored red cell count, white cell count, hemoglobin determination and study of the stained smear, for an accurate blood diagnosis? These are necessary, of course, but not enough. We must know the volume of packed corpuscles, determined by one or another form of hematocrit, and from this and the red cell count calculate the volume index which represents the mean volume of a single red cell compared with the normal volume of a red cell; that is, it tells us how large the average red cell is, and, therefore, whether we are dealing with the so-called macrocytic or large-average celled anemia, or microcytic, small-average celled, or normocytic, of normal size. This is directly related to the stage of red cell development at which, in the particular anemia, red cell maturation is interfered with, which at once tells us a good deal about the physiologic nature of the anemia, and the type of therapy which may be most successful.

The color index is a long used, but newly important determination, and a simple one; if the blood work is carefully done and repeated, it is a quite reliable one. It represents the mean hemoglobin content of the red cell, and is, of course, calculated by the simple means of dividing the percentage of the normal number of red cells present in the blood into the percentage of the normal hemoglobin (best taken as the grams of hemoglobin per 100 cc. of blood). The average normal figure in the adult is taken as 15.4 grams, the normal red cell figures for men being taken as 5,000,000, for women, 4,750,000. The normal color index very closely approximates one.

The bile content of the blood serum is a valuable aid in differentiation. If red cells are being destroyed with more than normal rapidity, the icterus index, or the van den Bergh test will show that hemolysis is going on. The icterus index is the simplest of these determinations, and for this purpose gives as much information as we need.

Bone-marrow activity, naturally a most fundamental thing in blood development, is indicated by the percentage of young red cells present in the circulation, the count of reticulated cells. Fifteen years ago this was a method used only in research laboratories, and I well remember seeing my first supravital stain in Dr. Minot's laboratory about 16 years ago, and considering it a great curiosity.

To these determinations may be added study of the actual diameter of the red cells, information less valuable on the whole than the volume studies made with the hematocrit, platelet counts, fragility tests, and the coagulation and bleeding time. Volume and diameter do not represent the same thing; volume is much more informatory.

As to the value of the hematocrit in the study of the blood, Wintrobe states, "My experience with the hematocrit has convinced me that of the 3 instruments, the hemocytometer, the hemoglobinometer and the hematocrit, the last named affords more information concerning the blood than either of the other 2, and indeed the information is more accurate."

I seem to have described above a very complex procedure for arriving at the diagnosis of an anemia from the hematologic standpoint, yet anyone who, as all of us have, has had the disappointing experience of the hit-and-miss method of treating especially the so-called secondary anemias should welcome advances which give us an opportunity of finding out exactly what method of treatment should be used, and how likely it is to meet with success in a given case. I believe these combined methods come very close to this ideal.

The instruments used in applying these methods should be well made and accurately standardized. The pipettes for cell counts are much more reliable if they have been certified by the United States Bureau of Standards. Variation in the unstandardized pipettes is often considerable, so that it is well to use the best instruments obtainable in determinations, which are as subject to errors as are red cell and white cell counts. Hemoglobinometers have to be chosen to accord with the particular color sense of the individual making the determinations; many workers cannot read the red scale of the Dare instrument with any degree of accuracy; others find it difficult to read the brown acid-hematin of the Sahli and similar instruments. The Tallquist blotting paper method is grossly inaccurate and, like the Dare, cannot be read by people with any trace of red-green color blindness. On the whole, among the simpler methods, the time-tried Sahli holds first place, and this instrument can be readily standardized in terms of grams of hemoglobin per 100 cc. A new hemoglobinometer devised by Haden uses an acid-hematin standard and compares accurately with chemical determinations of hemoglobin. The important thing is that the individual should be able to read a given method with a reasonable degree of accuracy and consistency.

Hematocrit readings require accurately graduated tubes, of which there are several different types, and a strongly constructed, rapid centrifuge with a speed of at least 2,500 R.P.M.

Determination of the icterus index is simple and requires no complicated apparatus.

Studies of stained smears, reticulocytes, etc., require the proper stains—Wright's for the routine smear, and brilliant cresyl blue for reticulocytes—and properly made smears.

The study of the patient suffering from anemia must always include a careful history, which may at once give the key to the diagnosis, a careful and complete physical examination, not neglecting the use of the tuning fork to detect lessened bone vibration sense, and the examination of the fundus oculi for hemorrhages or other changes indicative of blood disease.

A laboratory procedure which has almost become a part of the proper physical examination of the anemic patient is the gastric analysis. As Minot says, "The stomach tube and the tuning fork are almost as serviceable in the diagnosis of the condition (pernicious anemia) as examination of the blood," and not only is this true in pernicious anemia, but in other types, as the so-called idiopathic hypochromic anemia.

In the physical examination particular attention should be paid to the skin for evidences of petechiae, pigment changes, etc., to the tongue and teeth, palpation of the liver and spleen, examination of the rectum and prostate, and to the search, especially in the abdomen, for possible evidences of malignancy

In any severe anemia without clearly shown cause, it is well to consider X-ray of the gastrointestinal tract to rule out, so far as possible, malignancy, and of course it is a simple matter to study the stool for gross and occult blood on a meat-free diet. Yet it is possible by careful hematologic study alone to often rule out an anemia of the type usually caused by neoplasm, infections, chronic hemorrhage, and the like.

I would like to call attention to the importance of the careful consideration of the patient's diet. Our information on this should be completely accurate as to kind and amount, since, even in the presence of a definite blood disease such as pernicious anemia, dietary deficiency, i.e., lack of building stones for blood, can be a very important complicating factor which prevents complete recovery until it is corrected.

In the evidence of the change in diagnostic criteria which has taken place since the introduction of the newer methods, I quote a statement of Haden as opposed to the older school with talk of megaloblasts, poikilo- and anisocytosis, etc. He says, "The one constant feature of the blood in pernicious anemia is the macrocytosis, as shown by the increased volume index;" and again, "A patient having a plus volume index with an achlorhydria, practically without exception has a pernicious anemia." And again, with reference to treatment, "No patient with pernicious anemia is adequately and satisfactorily treated until the volume index has returned to normal." The reason for this is that macrocytosis indicates interference with the maturation of the red cell at the megaloblastic stage, so that the average cell put out into the circulation is larger than normal, and that this volume change returns to normal when the specific factors are supplied in adequate amounts.

All this is to emphasize again the importance of careful up-to-date laboratory study of the blood, which relates the changes found to the physiology of blood formation, to the life history of the blood cell.

The anemias may be classified on the above criteria as to average cell volume and hemoglobin content. Cell diameter and cell volume are by no means parallel; volume is used as the standard of comparison, being more easily and accurately determined and telling us more about the changes in cell content. Most of us are doubtless familiar with the newer classification, which, briefly stated, is as follows (Haden's classification):

1. Normocytic, normochromic—volume and color index normal.
2. Normocytic, hypochromic—volume index normal; color index low.
3. Macrocytic, hyperchromic—volume index increased; color index decreased.
4. Macrocytic, normochromic—volume index plus; color index normal.
5. Macrocytic, hypochromic—volume index plus; color index low.
6. Microcytic, hypochromic—volume index low; color index low.

Type 1 occurs in acute hemorrhage, when the number of cells and the quantity of the hemoglobin are equally reduced.

Type 2 is found where there is accelerated destruction of the blood as in hemolytic anemia due to infections and poisons.

Type 3 is the typical pernicious anemia group; the cells are interrupted in their maturation at the megaloblast stage. They are cells of large volume, and their relative hemoglobin content is high.

Types 4 and 5 are more unusual types, a much smaller group including the macrocytic anemias of pregnancy and the cases of hemolytic jaundice where many reticulocytes are poured into the blood stream raising the volume index above one.

Type 6 includes chronic hemorrhage, and idiopathic hypochromic anemia, in both of which conditions there appears to be interference with blood formation at the erythroblast stage so that small cells are freed in the circulation.

It is difficult to make the readjustment to a new and apparently complicated terminology, but the accuracy and completeness of the picture obtained in this way and the clarification of the physiology of the particular anemias justifies the effort involved.

In acute hemorrhage the volume index and color index are normal; the reticulocyte count normal, as the bone marrow has not yet been stimulated to reparative activity; the icterus index normal, as there is no excessive destruction of red cells; the volume of packed cells (hematocrit reading) low; and the hemoglobin and red cells equally lowered.

In chronic hemorrhage, on the contrary, the volume index and color index are both low. Chronic hemorrhage produces an iron deficiency which results in the production of small cells low in hemoglobin content. The reticulocyte count is usually above normal, and the icterus index normal, there being no hemolysis. The volume of packed cells will be low, and the hemoglobin relatively much lower than the red cell count.

In aplastic anemia (idiopathic), we see that the volume index is normal; the color index normal or slightly below normal; the icterus index within normal figures and the reticulocyte count low.

In pernicious anemia we have a high or very high volume index due to the macrocytosis; a high color index; a high icterus index since there is always some degree of hemolysis, and a low reticulocyte count.

It is true, of course, that by the older methods we can arrive at a fairly satisfactory diagnosis of many anemias and may sometimes institute satisfactory therapy, particularly in the pernicious anemia group, but I believe it will be found that careful study of the blood by the comparatively simple and much more informing combination of methods which I have described, all centered around painstaking clinical study of the patient, will unfailingly result in far better blood diagnosis, and as a direct consequence, far more intelligent and effective therapy.

BIBLIOGRAPHY

Haden, R. L.: Classification and differential Diagnosis of Anemias. J. A. M. A., 1935, **104**, 706.

Haden, R. L.: New Hemoglobinometer. J. Lab. & Clin. Med., 1930, **16**, 68.

Haden, R. L.: Clinical Significance of Volume and Hemoglobin Content of Red Blood Cell. Arch. Int. Med., 1932, **49**, 1032.

MINOT, G. R.: Year Book of General Medicine. Chicago, Year Book Publishers, Inc., 1934, p. 317.

MINOT, G. R.: Some Aspects of the Diagnosis of Pernicious Anemia. M. Clin. North America, 1935, **18**, 936.

WINTROBE, M. M.: Macroscopic Examination of Blood. Am. J. M. Sc., 1933, **185**, 58.

ABSTRACTS OF PAPERS READ BEFORE THE SOCIETY

"SYNCOPES: MECHANISM, INTERPRETATION AND TREATMENT,"* **Soma Weiss, M.D.**, Director of the Second and Fourth Medical Services (Harvard), Boston City Hospital, and Associate Professor of Medicine, Harvard Medical School.

Syncope is a common symptom occurring in a number of different conditions. In many instances it is transient, but it can be fatal. Until recently very little has been known either of the clinical significance or of the underlying mechanisms of this condition. The investigations conducted in the past few years now allow a better formulation of the clinical characteristics and the mechanisms of syncopes. On the basis of the underlying mechanisms, syncopes may be classified as: vasovagal syncopes; carotid sinus syncopes; vago-vagal syncopes; pleural shock; pericardial shock; syncope of central vasomotor origin; Adams-Stokes' attacks of non-reflex origin; syncope anginosa; syncope associated with paroxysmal tachycardias; syncope of congestive failure; and syncope of dissecting aneurism. The characteristic features of these syncopes are described. It is demonstrated that widespread reflexes can be responsible for the occurrence of fainting. In some instances, on the other hand, syncope develops entirely as the result of organic lesions of the cardiovascular system. The exact nature of the neurogenic and organic mechanisms is discussed. It is shown that the so-called Nothnagel and Gowers syndromes are not definite entities and that the cases described by these authors fall in a number of the previously mentioned groups. A rigid separation between fainting (syncope) and fits (epileptic seizures) cannot always be made. Certain features in the two conditions which can be used in differential diagnosis are enumerated.

"HEPATOCHOLANGIOGASTROSTOMY: REPORT OF A CASE."* **Charles S. White, M.D., F.A.C.S.**

The case reported derives its interest from an anatomical adjustment which made it possible to meet a serious surgical situation successfully.

Miss J., 36 years of age, had her gallbladder, which contained many stones, removed in 1930, and her health remained good for only 6 months, when jaundice occurred. This was not relieved by medication and rest, but the jaundice deepened until January, 1931, when she was readmitted to a hospital. At that time the stools were clay colored, the urine was the shade of port wine, and the skin was a deep yellow. The icterus index was 187 (normal, 4 to 6). The hemoglobin was 55 per cent; red blood cell count was 3,000,000, and white blood cell count was 8,000. X-ray studies of the gastro-intestinal tract were essentially negative. On February 4, 1931, she was re-operated upon. In separating the adhesions from the liver a drop of bile was seen to escape from the liver, apparently in the area formerly occupied by the gallbladder. No trace of the bile ducts could be found, and repeated aspirations with a needle mounted on a syringe were fruitless in obtaining bile. Recourse to an infrequent operation was considered expedient. This consisted in making an opening in the stomach near the pylorus, which was easily approximated to the liver. The edges of the fenestra were sutured to the liver about the point where the bile had been seen to escape in the early stage of the operation. The wound was closed with cigarette drainage, but primary union followed. The patient was transfused 4 times in the next 9 days, and from that time on her convalescence was most satisfactory. Bile soon appeared in the stools, the urine became a lighter hue, and the skin slowly lost its icteroid tint. The patient left the hospital greatly improved. At the present time, over 4 years after the operation, she reports herself perfectly well and has been so since her discharge from the hospital. An X-ray examination made in April, 1935, showed the stomach attached to the liver. Gastric analysis shows no hydrochloric acid in the stomach and a very large amount of bile. There doubtless has been established a flow of bile directly into the stomach from the liver by the anastomosis between the 2 organs, and, of course, communication with the major liver bile ducts. Whether this opening from the duct to the surface of liver is an artificial one or an accessory one can not be stated, nor is it important, so long as it functions. Its patency seems assured, since over 4 years have passed since the operation.

DEATHS DURING WEEK ENDED JUNE 8, 1935*

From the Weekly Health Index Issued by the Bureau of the Census, Department of Commerce

	Week ended June 8, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	8,155	8,182
Deaths per 1,000 population, annual basis	11.4	11.4
Deaths under 1 year of age	571	634
Deaths under 1 year of age per 1,000 estimated live births	52	59
Deaths per 1,000 population, annual basis, first 23 weeks of year	12.4	12.3
Data from industrial insurance companies:		
Policies in force	67,830,119	67,799,549
Number of death claims	13,156	13,185
Death claims per 1,000 policies in force, annual rate	10.1	10.1
Death claims per 1,000 policies, first 23 weeks of year, annual rate	10.5	10.8

* Reprinted from Public Health Reports, United States Public Health Service, June 28, 1935, p. 864.

---

* Presented before the Annual Scientific Assembly, May 2, 1935.

STERLING RUFFIN, M.D., D.Sc.

President, The Medical Society of the District of Columbia, 1935–1936

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA
Editorial Office, 1718 M Street, N. W.

EDITORIAL STAFF
COURSEN B. CONKLIN, A.M., M.D., *Managing Editor*
WALLACE M. YATER, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

TO THE MEMBERS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, GREETINGS.

The highest honor that can come to one of your members is election to the presidency of the Society, and I thank you heartily for your generous expression of good will and confidence. I am accepting the office of President with the greatest trepidation. I could not accept it but for the belief that I will have your support and coöperation. With your help I will gladly do my best.

During the years immediately past organized medicine in the District of Columbia, as represented by this Society, has made more substantial progress than in any other like period of its existence. My immediate predecessors and their committee associates have made history. An organization has been perfected which puts us shoulder to shoulder with the most progressive groups in other localities. If there was ever a time when organization and efficient functioning were necessary, it is now, for we are face to face with problems of vital importance. State medicine is no longer in the offing; we are at grips with it. In a demoralized and distracted world, gone socialistic in many respects, the danger of socialism in medicine is very real. The work already done by this Society to combat the socialistic trend of the times is notable, but, if we would preserve our individualism and inherited liberties, the work begun must be broadened and made far-reaching. Even now, in recognition of what has been done, many are looking to us for leadership. We in turn must work for active leadership on the part of the national organization of which we are a unit. The most effective weapon against the march of state medicine, with all of its iniquities, would be determined resistance by the American Medical Association and to bring about such resistance is one of our chief present concerns.

Your committees are in wise and experienced hands. Of a total membership of approximately 700, there are more than 150 committeemen and committeewomen, all giving, and eager to give, freely of their time and talents. But the committees alone can not do all that needs to be done—every individual member has a responsibility. My first and most earnest request of you is to give to the officers and committees of your Society all the help that in you lies.

STERLING RUFFIN

PERSONNEL OF COMMITTEES, 1935–1936

EXECUTIVE COMMITTEE

Elective Members

Ralph M. LeComte, *Chairman*

Jerome F. Crowley
Harry A. Fowler
Joseph Horgan
Oscar B. Hunter
Prentiss Willson
A. B. Bennett
William T. Gill, Jr.
Augustus C. Gray

Ex officio

Sterling Ruffin
Henry C. Macatee
Don Johnson
Loren B. T. Johnson
C. N. Chipman
Herbert P. Ramsey, *Vice Chairman*
William H. Hough
Arch L. Riddick
F. A. J. Geier
Arthur M. Zinkhan
Walter Freeman
Wallace M. Yater

Coursen B. Conklin, *Secretary*

CENSORS

Don Johnson, *Chairman*

Benjamin F. Dean, Jr.
John J. Shugrue
W. Warren Sager
G. Victor Simpson

COMPENSATION, CONTRACT AND INDUSTRIAL MEDICINE

Loren B. T. Johnson, *Chairman*

William J. Stanton
James A. Cahill, Jr.
W. Cabell Moore
J. Russell Verbrycke, Jr.

HOUSE

C. N. Chipman, *Chairman*

Henry J. Crosson
Amy J. Rule
Albert E. Pagan
Charles S. White

Program

Arch L. Riddick, *Chairman*

Jacob Kotz
B. L. Hardin, Jr.
W. M. Ballinger
Harry F. Davies

Public Health

William H. Hough, *Chairman*

Subcommittee on Communicable Diseases

P. A. McLendon, *Chairman*
Margaret M. Nicholson
James A. Rolls
Charles A. Schutz

Subcommittee on Prevention of Deafness

Frederick C. Schreiber, *Chairman*

Victor R. Alfaro
Allan W. Walker, Jr.

Subcommittee on Maternal Welfare

Herbert P. Ramsey, *Chairman*
Joseph Harris
J. Bay Jacobs
Howard F. Kane
Alec A. Preece
Prentiss Willson

Subcommittee on Mental Health

Walter Freeman, *Chairman*
Roger S. Cohen
Antoine Schneider
H. D. Shapiro

Subcommittee on Sanitation

Eugene R. Whitmore, *Chairman*

Charles B. Campbell
C. N. Chipman

Subcommittee on Tuberculosis

John Minor, *Chairman*
Montgomery Blair, Jr.
C. R. L. Halley
James P. Leake

Subcommittee on Venereal Diseases

Russell J. Fields, *Chairman*

F. H. Mistretta
E. W. Nicklas

Subcommittee on Conservation of Vision

Frank D. Costenbader, *Chairman*
E. Leonard Goodman
J. Beaty Griffith
R. S. Pendexter

Public Information

Herbert P. Ramsey, *Chairman*

Alan J. Chenery
Arnold McNitt
John F. Preston
R. Lyman Sexton

Hospital

Francis X. McGovern, *Chairman*

F. O. Coe
F. A. Hornaday
John H. Lyons
Fred R. Sanderson
Paul S. Putzki
Gregg C. Birdsall
Frank Leech
E. G. Breeding
J. G. Lewis
E. W. Titus

Medical Defense

Luther H. Reichelderfer, *Chairman*

Francis R. Hagner
John B. Nichols
Coursen B. Conklin, *ex officio*

Legislative Committee

P. A. McLendon, *Chairman*

John Minor
H. D. Shapiro

(Temporary Appointments)

Charles S. White, *Vice Chairman*

Daniel L. Borden
Huron W. Lawson
William B. Marbury
Howard F. Strine
Eugene R. Whitmore

Medical Economics

Prentiss Willson, *Chairman*

Subcommittee on Coöperation with Government Agencies in Care of Indigent

William H. Hough, *Chairman*

Russell J. Fields
P. A. McLendon
Herbert P. Ramsey
Prentiss Willson

Subcommittee on Coördination of Resources for Medical Care

Wallace M. Yater, *Chairman*
Thomas A. Groover
Alec A. Preece
Herbert H. Schoenfeld

Subcommittee on Dissemination of Medical Economic Information

Arthur C. Christie, *Chairman*

Harry S. Bernton
Robert M. Bolton
Sterling Ruffin
William J. Stanton

Subcommittee on Government and Public Health Agencies

Oscar B. Hunter, *Chairman*

W. W. Chase
Don S. Knowlton
Francis X. McGovern
Edward Clarke Morse

Subcommittee on Hospitals and Dispensaries

Henry C. Macatee, *Chairman*

Henry L. Darner
Joseph Horgan
Janvier W. Lindsay
Marvin M. McLean
Edgar M. McPeak
J. Russell Verbrycke, Jr.

Tumor Registry

Janvier W. Lindsay, *Chairman*

Walter Freeman
Matthew White Perry
V. J. Dardinski
F. J. Eichenlaub
H. H. Leffler
James A. Cahill, Jr.
Edmund Horgan
Claude Moore

Woman's Auxiliary Advisory

H. A. Fowler, *Chairman*

Arthur C. Christie
C. N. Chipman

THE EXECUTIVE COMMITTEE ORGANIZES FOR 1935–1936

At the meeting held on the evening of July 1, 1935, the following officers were elected:

Ralph M. LeComte, *Chairman*
Herbert P. Ramsey, *Vice Chairman*
Coursen B. Conklin, *Secretary*

The newly elected chairman, Dr. LeComte, has selected the following personnel for subcommittees:

Bequests: Augustus C. Gray, *Chairman*, Oscar B. Hunter, Joseph Horgan.

Budget: A. B. Bennett, *Chairman*, Arch L. Riddick, C. N. Chipman.

Business Affairs: Jerome F. Crowley, *Chairman*, Don Johnson, William T. Gill, Jr.

Reference: Coursen B. Conklin, *Chairman*, Sterling Ruffin, Ralph M. LeComte.

STERLING RUFFIN, M.D.

Dr. Sterling Ruffin, who became the 69th President of the Medical Society of the District of Columbia, has had a distinguished career as a physician and a medical educator. Since his graduation from Columbian (now George Washington) University, in 1890, he has been connected almost continuously as a member of the Faculty. From 1899 to 1902 he served as Professor of Materia Medica and Therapeutics, succeeding the late Dr. Daniel Webster Prentiss. In 1902 he became Professor of Medicine. The University has given recognition of his work by making him Professor Emeritus, in 1924, and conferring upon him the degree of D. Sc. in 1932. Dr. Ruffin, previous to his entry at George Washington University, resided in North Carolina attending the University of North Carolina, 1882–1884. Later, in 1900, he was in attendance at the School of Tropical Medicine in London. He has served on the hospital staffs of numerous local institutions, as physician in chief of George Washington University Hospital, visiting physician at Columbia Hospital, consulting physician to the Government Hospital for the Insane, Episcopal Eye, Ear and Throat Hospital and Garfield Memorial Hospital. His association with the organized local profession began in 1894 when he became a member both of the Medical Association* of the District of Columbia and the Medical Society of the District of Columbia. His important committee appointments have included Public Health, 1899–1901; a special committee to gain effective legislation to combat tuberculosis in 1906; liaison committee with the Homeopathic Medical Society, 1906; in addition, service on program committees and other special committees are noted in his Society record. Dr. Ruffin has manifested much interest in the defense of members threatened for alleged malpractice, giving freely of his time and effort as a member of the Medical Defense Committee. He has made contributions to the scientific programs from time to time. He is a member of the American Clinical and Climatological Association. Dr. Ruffin's extensive practice has included distinguished members of the cabinets of various administrations and their families, including on occasion the country's chief executive. Noted particularly for his ability as an administrator and a personality which gains respect and coöperation, Dr. Ruffin will assure the Society a year of progress.

LEGISLATION BEFORE CONGRESS

S-3084

There has been introduced before the Senate by Senator Royal S. Copeland of New York, and referred to the Committee on the District of Columbia, Bill S-3084, "To Regulate the Practice of Pharmacy in the District of Columbia." This bill provides that every individual who dispenses drugs in any form whatsoever, is to be licensed by the Board of Pharmacy and would be compelled to keep a record of all drugs used by him whether in his office or left at the home for continued use. This would apply particularly to the use of narcotics and sedatives which one may at present leave with a nurse or attendant to use, when and if necessary. Its provisions would certainly create complicated paper work in the case of most physicians, particularly the homeopathic group.

S-5

The Food and Drugs Bill, S-5, which has passed the Senate and soon will be before the House Committee on Interstate and Foreign Commerce, of which Senator Rayburn is chairman, has one very obnoxious paragraph which should be eliminated. This paragraph contemplates the printing on the container of all prescriptions, the contents of such prescription, and also, in the case of drugs which might be habit-forming, the statement, "Warning—May Be Habit-forming." Obviously this would divulge information to a patient which might be tremendously harmful in the course of the treatment. The Legislative Committee is active in protecting the Society's interests and will attend hearings.

---

* Amalgamated 1911.

Members are requested promptly to make contact with representatives in Congress interested in these bills, informing them of their attitude.

S-2939
HR-8437
S-2013

SPECIAL LEGISLATION FOR BENEFIT OF LICENTIATES UNDER

"*An Act to regulate the practice of medicine and surgery, to license physicians and surgeons, and to punish persons violating the provisions thereof in the District of Columbia,*" as approved June 3, 1896, as amended.

The present law, Section 24, "*An Act to regulate the practice of the healing art to protect the public health in the District of Columbia,*" ap proved February 27, 1929, reads:

> "Every person licensed to practice medicine and surgery or to practice midwifery in the District of Columbia under the provisions of an Act entitled 'An Act to regulate the practice of medicine and surgery, to license physicians and surgeons, and to punish persons violating the provisions thereof in the District of Columbia,' as approved June 3, 1896, as amended, who desires to continue so to practice after this Act becomes effective, shall apply for a license so to do. As soon as practicable after the approval of this Act the commission shall by publication give notice of this requirement in one or more newspapers of general circulation in the District of Columbia and in one or more medical journals of national circulation. Application for such relicensing shall be made within ninety days after the publication of such notice. A licentiate who within the time thus limited applies for relicensing may continue to practice until the commission has acted on his application and granted to him a new license, if he be entitled thereto. A licentiate who fails to make application for relicensing within the time thus limited, but who later makes such application, shall not practice until after a new license, if the commission finds him entitled thereto, has been issued to him. After *five years* after the approval of this Act the commission shall issue no license to practice the healing art in the District of Columbia on the basis of a license to practice medicine and surgery or to practice midwifery, in the District of Columbia, in force on the date of its approval. . . . . "

Through absence from the District of Columbia with an unawareness of the provisions of the present law, certain physicians have pending special legislation to regain the right to practice in the District of Columbia. In each instance the physician was duly licensed to practice medicine and surgery under the act of 1896, but had failed to apply for relicensing according to provisions of Section 24, quoted above. The number of the bill which will soon come before Congress for final consideration, with the name of physician, follows:

S29-39—Ronald A. Cox*
HR-8437—Arthur B. Walker
S-2013—Pak Chue Chan

S-31, which passed the Congress and was approved, granted a license to Dr. Chester C. Groff,† now deceased.

---

* Member, Medical Society of the District of Columbia.

† Formerly, member, Medical Society of the District of Columbia.

PERSONALS AND NEWS

Dr. William Thornwall Davis addressed the Tennessee Valley Medical Association and Postgraduate Assembly at its meeting, June 28, 1935, in Knoxville, Tennessee, on the subject "Ophthalmological Symptoms of Endocrine, Dysfunctions." He also was on the program by invitation, of the Mississippi State Medical Association in Biloxi in May.

Dr. Walter Freeman is attending the International Neurological Meeting in London.

Major General Charles R. Reynolds succeeded Major General Robert U. Patterson as Surgeon General of the United States Army, June 1, 1935.

REPRINTS RECEIVED

The following reprints have recently been received for which due acknowledgment is made:

"The Diagnosis of Bacterial Allergy." Grafton Tyler Brown, M.D., Southern Medical Journal, October, 1934.

"Further Experiences with Maximum Dosage Pollen Therapy." Grafton Tyler Brown, M.D., Journal of Allergy, November, 1934.

"Allergic Phases of Arthritis." Grafton Tyler Brown, M.D., Journal of Laboratory and Clinical Medicine, December, 1934.

"The Innervation of Muscles of the Abdomen with Reference to Surgical Incisions." Charles S. White, M.D., and J. Lloyd Collins, M.D., Southern Medical Journal, April, 1935.

"Etiology, Mechanism and Treatment of Asthma." James T. Wolfe, M.D., American Medicine, October, 1934.

"Case Report: Unusual Asthma." James Thruston Wolfe, M.D., Southern Medicine and Surgery, March, 1935.

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV AUGUST, 1935 NUMBER 8

ARTIFICIAL PNEUMOTHORAX

ITS PLACE IN THE TREATMENT OF PULMONARY TUBERCULOSIS*

CHARLES P. CAKE, M.D.

Instructor in Medicine, Georgetown University School of Medicine

Pulmonary tuberculosis is a disease which is protean in its manifestations. Its course is influenced by various factors which do not lend themselves to measurements and is, therefore, difficult to predict.

Many workers have sought for criteria in the clinical picture upon which to prognosticate the outcome of a given case of pulmonary tuberculosis for the purpose of determining just what treatment that case will require. Although many of them have claimed success in their investigations along this line and have described various clinical features upon which such a prognostication might be based, it can be said with conviction that as yet we have no means of predicting with accuracy whether a given case will do well or badly on any particular form of treatment.

Therefore, if we would do the most good for the greatest number of our tuberculous patients, it would seem that the wisest course for us to follow would lie in treating all of them as intensively as possible. The importance of early diagnosis is well appreciated, and nothing more need be said about it than that all statistics show that the outlook for cure is inversely proportional to the extent of the disease present at the start of treatment.

In the light of our present knowledge rest remains the only worthwhile treatment of pulmonary tuberculosis. In bone and joint tuberculosis the orthopedists immobilize the affected areas by means of casts and fusion operations. Likewise we attempt in our pulmonary cases to reduce the activity of the diseased lung or lungs to a minimum by placing the patient at rest in bed and in appropriate cases inducing some form of collapse of the lung. The form of collapse that is most generally applicable and produces the least permanent alteration in the normal state is artificial pneumothorax.

The value of artificial pneumothorax is generally appreciated, and it is conceded to be the greatest boon to sufferers from tuberculosis that has been advanced since the introduction of the rest cure. However, there is still some difference of opinion among phthisiotherapists as to when and in what cases it should be applied. There are those who hold that every case should be observed for a certain length of time to determine the reaction of the lesions to bedrest alone and that so long as serial X-rays show that the lesions are improving, no matter how slowly, there should be no change of treatment. There are others who believe that collapse should be instituted as soon after diagnosis as practical. The weight of the evidence seems to be on the side of the latter, the so-called "radicals."

In the first place, there is the queston of time and length of disability. In the past this has received too little consideration. Patients have been kept in bed in sanatoria for years while nature, if it was benevolent, slowly brought about healing. Now we know that in such cases, if we will give nature such assistance as is afforded by artificial pneumothorax, healing occurs much more quickly and the period of disability will be greatly shortened.

---

* Read before the Annual Scientific Assembly of the Society, May 2, 1935.

In the second place, waiting may prove dangerous. It is not an uncommon experience to see tuberculous lesions continue to spread even after the patient is put to bed. In these cases the rest afforded the diseased lung is not enough to even start the healing process. With our patient in bed we are apt to be lulled into a false sense of security and before we realize it, the disease has spread until it is too late to do artificial pneumothorax.

Then there is the question of how many tuberculous patients, even those who are found in the earliest stages, will get well on bedrest alone. An illuminating answer to this question is found in the studies of Reichel and Naumann on the late fate of the early infiltrate, or the typical form of isolated tuberculous lesion in the beginning of the disease. These studies have shown that although under the usual conservative treatment its course may be favorable so far as the life of the patient is concerned, it is definitely unfavorable from the standpoint of healing. In their experience conservative sanatorium treatment failed to check the disease in more than half the cases. They, therefore, conclude that collapse therapy should be started as soon as the presence of an early infiltrate is discovered.

A statistical study of 365 cases made by the late Harry Lee Barnes showed that while 41 out of each 100 noncavernous exudative patients did recover without collapse therapy, it appeared that 28 in each similar 100 patients who died might have been saved if all had been given pneumothorax treatment.

Such are the arguments in favor of the use of artificial pneumothorax, in even the early or most favorable cases. In the more advanced cases, especially those with cavities which are amenable to artificial pneumothorax there is no question of its advisability. While it is not to be looked upon as a cure-all, still it offers hope of cure to many otherwise hopeless cases.

As familiarity with artificial pneumothorax has increased, the indications for its use have steadily widened. Whereas a few years ago the percentage of patients in sanatoria receiving this form of treatment varied between 5 and 15 per cent, today the percentage has increased to between 35 and 50 per cent and in some instances even higher. Formerly only those patients with one lung extensively involved and the other lung clear or only very slightly diseased were considered suitable cases. Collapse therapy was used in only a few early cases. Now we know that our best results are obtained in the early cases. As regards the amount of disease in the contralateral lung, experience has taught us that we can be more liberal than at first was considered possible. This has been brought about by the experience of seeing rather extensive disease in the better lung clear up when the more extensively involved lung was collapsed.

The factors involved in an explanation of this phenomenon are the improvement in the patient's general condition due to the lessening of toxic absorption from the more extensively involved area and the mechanical splinting of the lung still in use exerted by the pneumothorax on the opposite side.

A recent development in the field of artificial pneumothorax is the simultaneous partial collapse of both lungs. This is applicable in certain cases in which after collapse of one lung the disease in the other lung has shown a tendency to spread. It may also be employed in certain bilateral cases when the involvement is about equal in both lungs but not so extensive as to cause distressing dyspnea.

Following the institution of artificial pneumothorax in favorable cases there is disappearance of symptoms, which at times occurs with dramatic suddenness. The patient enters a stage of what may be called clinical recovery and in a relatively short time may be able to gradually resume his work while still continuing the treatment. It is rarely wise to allow re-expansion of the lung in less than 2 years, and in most cases it is probably safer to continue collapse for 3 or 4 years. During this period the patient need not be disabled, and in fact some patients are loath to discontinue their treatment when advised to do so. One patient whom I advised to discontinue his treatment after 5 years of collapse refused on the grounds that he was getting along so well in his work with one lung that he did not want to run the risk of allowing the collapsed lung to re-expand and find that it had not healed. While it is not wise to continue the collapse indefinitely, it was easy to understand his point of view.

As regards the dangers of artificial pneumothorax, it may be said with conviction that these are slight and in the great majority of cases may be disregarded if proper precautions are observed. It is only when inaccurately and carelessly given that they are to be feared. In experienced hands under aseptic conditions the operation is practically free of danger.

Among the complications which may occur, however, the most frequent is the development of pleural effusions. This occurs to some degree at some time during the course of the artificial pneumothorax in about 75 per cent of the cases. The etiology of these effusions is still debatable. In many cases the effusions are small in amount and are present for only a short time. They require no special treatment. Others require one or more aspirations of the fluid before it disappears. A simple effusion may rarely develop into a tuberculous empyema or become secondarily infected with pyogenic organisms. The majority of these can be controlled by repeated aspirations followed by irrigations of the pleural cavity with antiseptic solutions or the instillation of gomenol in oil.

Pleural shock due to injury of the pleura is a very rare occurrence. Care in anesthetizing the pleura will usually eliminate the danger of this complication.

Air embolism occurs infrequently as a result of injecting air into a punctured adherent lung. Simple puncture of an adherent lung is usually harmless, but air embolism may be fatal. However, it is an exceedingly rare occurrence, and the danger of it is obviated by careful technic.

A casual consideration of the complications which might occur in artificial pneumothorax might lead one to believe that the risks attendant upon its use were great. As a matter of fact, these things occur infrequently, the benefits greatly outweigh the risks and the patient would be subjected to greater danger if left alone.

There are certain circumstances which I feel contraindicate the use of artificial pneumothorax. Of these the most frequently encountered is too extensive involvement of both lungs. If this is so great as to cause dyspnea, it is obvious that it would be unwise to further limit the functioning air space by collapse. Dyspnea *per se* is not always a contraindication, however, because it may be due to toxemia, and lessening of toxic absorption by collapse may sometimes relieve it. Another contraindication is definite cardiac weakness, particularly when due to mitral stenosis. Pneumothorax does interfere to some extent with the heart's action and in 2 cases in my experience has been the cause of acute decompensation which was relieved by the elimination of the pneumothorax. Asthma and advanced emphysema are contraindications. Nephritis, unless of toxic origin, usually constitutes a contraindication. Advanced age is not always a contraindication. In the absence of other adverse factors, and when the artificial pneumothorax offers the patient a chance for greater activity and relief of symptoms, with perhaps ultimate cure, it should be employed. I recall 2 elderly ladies, one 73 and the other 76 years of age, who were so treated, and a short time after collapse was instituted they were leading comfortable and active lives. In the 73 year-old lady the tuberculosis was complicated by diabetes mellitus, but she became so well that she later married while the pneumothorax was being continued.

Among the factors which interfere with the success of treatment by artificial pneumothorax the most frequent is an adherent pleura. When extensive this may prevent any collapse at all. Even when some degree of collapse can be obtained, adhesions may prevent a sufficient collapse to be of therapeutic value. The end results of artificial pneumothorax treatment are to a large extent influenced by the presence or absence of adhesions. Saugman (Brown and Hayes) found that 70 per cent of his cases without adhesions could work, 33 per cent of those with few adhesions, and only 11 per cent of those with many adhesions. The Matsons (Brown and Hayes) have found that adhesions prevent a satisfactory collapse in 26 per cent of their collapse cases.

In a certain number of these cases the adhesions which interfere with the collapse of the lung can be severed with a cautery by the operation of intrapleural pneumolysis. In others, relaxation of the adhesions can be obtained by paralyzing the hemidiaphragm on the side of the pneumothorax by temporary or permanent interrupting of the phrenic nerve, the operation being known as phrenicectomy or phrenicotomy. When used as supplementary measures to artificial pneumothorax these measures will frequently overcome the harmful effects of adhesions and convert an otherwise unsuccessful collapse into a successful one.

Summary and Conclusions

1. Pulmonary tuberculosis is a disease which is protean in its manifestations and unpredictable as to its outcome, and, it should, therefore, be treated as intensively as possible as soon as it is discovered.

2. Rest of the diseased lung is the only worthwhile treatment known at the present time, and this should be obtained by placing the patient in bed and, whenever possible, instituting artificial pneumothorax.

3. When confronted with an active case of pulmonary tuberculosis, one's problem is not so much whether artificial pneumothorax might be done as it is whether he will be justified in omitting it. There are only 3 types of cases in which such an omission is justified, namely, (a) those cases in which it is doubtful that the lesions are active, (b) those which are so far advanced that no form of treatment offers hope of benefit, and (c) those in which some circumstance exists which contraindicates pulmonary collapse.

4. Following successful institution of artificial pneumothorax, the patient enters a stage of what may be called clinical recovery during which he may be able to resume his activities while his collapse is being maintained until actual healing has occurred.

5. Certain complications of artificial pneumothorax may occur, but these are of minor importance in comparison with the benefits which it affords.

6. Certain circumstances which contraindicate the use of artificial pneumothorax have been discussed.

7. Adhesions may interfere with the success of artificial pneumothorax, but by employing intrapleural pneumolysis or phrenicectomy as supplementary measures it is possible to convert many otherwise unsuccessful cases into successful ones

BIBLIOGRAPHY

Barnes, H. L.: Prognosis of Noncavernous Phthisis, with Special Reference to Size and Quality of Lesions Shown by X-ray; Analysis of 365 Cases. Am. Rev. Tuberc.. 1933, 28, 660.

Brown, L., and Hayes, J. N.: Tice's Practice of Medicine. Hagerstown, W. F. Prior Co., 1927, 2, 532.

Reichel, H., and Naumann, W.: Über das weitere Schicksal von Frühinfiltraten. Deutsche med. Wchnschr., 1934, 60, 854.

Treatment of Bronchial Asthma by Dorsal Sympathectomy. The essential factor in causation of asthma is spasmodic contraction of bronchia muscles. It is a matter of paramount importance, therefore, to ascertain the exact source and the character of bronchial innervation. The current views on this subject may be summarized as follows: The smooth muscles of the bronchi derive their nerve supply on each side from the pulmonary plexus; the latter consists of two divisions—anterior and posterior—respectively adjacent to anterior and posterior aspects of the hilum of the lung. Both the vagus and the sympathetic contribute branches to the plexus; the vagus is held to be the constrictor or the catabolic nerve of the bronchial musculature, while the sympathetic is regarded as a nerve exerting anabolic or dilator action. Both nerves have central connection with the respiratory center in the medulla. The sympathetic branches reach the plexus through the connector cells which lie in the third and fourth thoracic segments of the cord; from there connector fibers in animals pass to the stellate ganglion; in man they appear to end in all three ganglia of the cervical sympathetic. From these the excitor fibers pass to the pulmonary plexus in the cardiac branches of the sympathetic. The sympathetic dilator function is thought to be manifested by the effect of adrenalin injection during paroxysms of asthma, the suprarenal bodies being closely allied to the sympathetic both developmentally and functionally. In the light of the recent investigations this conception of the bronchial innervation cannot be accepted in its entirety. . . . .

. . . . The rationale of dorsal sympathectomy for relief of asthma is twofold: (1) Sympathectomy is a sure method of severance of all sensory dorsal sympathetic simuli, thus throwing out of action the motor half of the reflex arc. (2) It implies direct destruction of the bronchial constrictor nerves (especially those belonging to the second to sixth dorsal rami).

Technic. There are three methods of direct and two methods of indirect dorsal sympathectomy applicable for treatment of bronchial asthma.

. . . . Generally speaking, the indirect methods, *i.e.*, based on absolute alcohol injection, are preferable to the open sympathectomy for the following reasons: the procedure is infinitely quicker, the risk practically nil, the condition of the patient is usually such as to preclude any direct operative interference; furthermore, total abolition of the sympathetic control is undesirable on account of the danger of subsequent development of bronchiectasis. . . . .

Summary. (1) There is sufficient theoretical, pathologic and clinical evidence to show that the dorsal sympathetic nerves, especially the second, third, fourth, fifth and sixth rami, contain both contractor fibers to the bronchial musculature as well as sensory bronchial fibers.

(2) Both the rami and the thoracic trunk are accessible either for neurectomy or for neurolysis by absolute alcohol; the rami—immediately below the points of junction with the intercostal nerves, the trunk—above the level of the neck of the fourth rib.

(3) Bronchial sympathetic neurolysis by absolute alcohol has resulted in complete relief in 75 per cent of cases of severe intractable asthma treated.

Extract from article by Gdal L. L. Levin, M.B., B.S. (London), *Annals of Surgery, August, 1935, p. 161.*

THE TREATMENT OF SECONDARY ANEMIA*

Stuart O. Foster, M.D.

Associate in Medicine, George Washington University School of Medicine

While secondary anemia is one of the most common pathological findings and of interest not only to the medical man but also to the various specialists, it is an odd commentary that there should be so much confusion concerning its treatment. This confusion has perhaps largely resulted from the shifting emphasis upon one and then another therapeutic agent, together with no little divergence of opinion concerning the relative efficacy of each. Today it cannot be said that there is as yet anything approaching unanimity of opinion upon the subject. In an effort, however, to clarify to a degree the present status of this branch of therapy I wish to discuss in the main four outstanding questions:

1. What form of iron and what amounts seem to be most beneficial? 2. What value if any does copper have in the treatment? 3. What is the rôle of liver? 4. Of what benefit are vitamins?

Iron is the one therapeutic agent which has been used for years and the usefulness of which in treatment is unquestioned. Even in the time of Blaud it was recognized that large doses should be given (Murphy; Davidson and Leitch; Bethel, et al.). As to the method of administration, it seems that there are still many who administer iron parenterally, although justification can be found in the literature for such as a routine procedure. Even though it has been found (Heath, Strauss and Castle) that 32 mg. of iron parenterally is approximately equivalent to 1,000 mg. of iron orally and represents quite closely the amount of iron gained in the circulating hemoglobin, such large doses as are adequate intramuscularly or intravenously are toxic and would have to be given daily. Fortunately, the parenteral administration is seldom necessary as there are no contraindications to its use by mouth, except a rare gastro-intestinal intolerance to the large doses. Most of it is administered by capsule and in such form, of course, does not stain the teeth.

There is, however, some difference of opinion as to whether the ferrous or ferric form is more effective, although the present trend is definitely towards the ferrous. The theory back of this is that the ferric form must be changed to the ferrous in the upper portion of the intestine before it can be absorbed (Davidson and Leitch). Therefore, giving it in the form which approaches as nearly as possible that state in which it will be assimilated seems logical. It should be remembered that food iron is chiefly in the ferric form and even though a given anemic patient is on a diet high in iron content its absorption is an uncertain factor. There is some evidence pointing toward the fact that iron is absorbed better in an acid medium (Mettier and Minot), or perhaps more correctly, absorption is accelerated when there is sufficient acid to lower the alkalinity in the upper intestine. This may be one of the factors playing a part in the hypochromic anemias which generally are accompanied by an achlorhydria.

In spite of the trend to ferrous form noted above, different preparations of iron have their strong advocates. Solubility plays an important rôle, and this is one factor which explains the popularity of ferric ammonium citrate. Other preparations have definite advantages and disadvantages, as, for instance, the small bulk but relative insolubility of reduced iron (Mitchell and Vaughn). Therefore, the particular preparation is not so important as the amount of available iron liberated as ferrous irons in the small intestine. If ferric ammonium citrate be elected it should be given in doses of 3 to 8 grams per day, such dose yielding approximately 500 to 1400 mg. of available iron (Ottenberg; Davidson and Leitch). Comparable doses of reduced iron would be 1.5 to 3.0 grams, yielding approximately 1200 to 2400 mg. of available iron, and of the pills of ferrous carbonate 2.0 to 5.4 grams, yielding 200 to 500 mg. However, there is with every patient an optimum dosage, above which no faster response is obtained, and in estimating this a daily 2 per cent rise in the hemoglobin is all that should be expected, and this much only when the initial level is low, the relative rise decreasing as the hemoglobin increases. All preparations should be given after meals when the acidity of the stomach is highest. Not only is iron part of the hemoglobin molecule but it has been shown that it stimulates reticulocytes, and in this way is a two-edged sword (Minot and Heath). It has been found that normal blood contains about 50 mg. (Sachs, Levine and Fabian) of iron per 100 cc. and to maintain that state at least 6 mg. per day is all that is necessary in men and children but not always in women. This amount is provided in the average diet.

---

* Read before the Annual Scientific Assembly of the Society, May 1, 1935.

Concerning the use of copper in the treatment of secondary anemia, there is at present much disagreement. Considerable work has been done both experimentally (Waddell, et al.; Hart, et al.) and clinically (Mills) pointing towards the concept either that iron alone is not always sufficient without the addition of copper, or if so, the addition of the latter markedly enhances the value of iron (Rohland). There are those who feel that the effectiveness of the addition of liver to iron may in a large measure be due to the 145 mg. of copper per kilo. of fresh liver which it has been found to contain. And it has even been suggested that the reason for such large doses of iron, out of all proportion to the amount actually absorbed, is the necessity to supply sufficient copper which is a contaminant in minute quantities of all iron used therapeutically. This is hardly probable in view of the results from the parenteral administration of minute quantities of iron. On the other hand, aside from those who feel that iron alone is sufficient, there is another school of thought which believes that the specificity of copper has not been proved, and that while the addition of copper to iron may be slightly better, other elements such as manganese (Titus, et al.), nickel, germanium, arsenic (Myers and Beard), etc., are almost as effective in proper doses. There is more agreement on the fact that if copper is vital, its action is mainly as a catalyst inasmuch as it is not a constituent of the hemoglobin molecule. If copper is administered it apparently makes little difference whether it be in the cuprous or cupric form (Cason). Doses of 3 to 30 mg. of copper sulphate daily have been recommended, but prolonged usage in large doses should be guarded against because of a possible deleterious effect on the liver. Normal blood has been found to contain about 0.13 mg. per 100 cc. of blood or about 7.8 mg. for the entire 6 liters (Sachs, et al.). It is increased in various blood dyscrasias associated with anemia, and an inverse relationship exists between copper and iron, i.e., iron always goes down with the anemia while the copper content rises; and conversely in the treatment of polycythemia vera, when the high iron content is lowered with phenylhydrazine, the copper content rises. Apparently copper is stored mainly in the liver and is readily available for any emergencies. This fact somewhat minimizes its importance in treatment except in the long drawn-out anemias. At least some of the skepticism in regard to copper is to be explained by the fact that minute quantities are all that are necessary, and inasmuch as copper is a normal constituent of many food stuffs, especially liver, oysters, chocolate, spinach, etc., and inasmuch as copper is a contaminant of all iron used therapeutically, the value of prescribing it separately has been doubted. From the above discussion it seems fair to summarize from the weight of the evidence at present available, that copper unquestionably will enhance the value of iron even though such assistance is usually not necessary.

Aside from the inorganic elements described above, liver is the most potent of the organic factors concerned in hematopoiesis (Whipple), although kidney, heart, gizzard, spleen and pancreas in the animal kingdom, and especially apricots of the vegetable kingdom have been shown to be potent hemoglobin builders. A so-called "secondary anemia liver fraction," potent in anemia due to hemorrhage and different from the liver fraction so valuable in pernicious anemia, has been isolated and found to be a valuable adjunct in therapy. This crude "secondary anemia liver fraction" contains about 65 to 70 per cent of the potency of whole liver for new hemoglobin formation and represents about 3 per cent of whole liver weight. It is interesting to note that this "secondary anemia liver fraction" apparently accumulates in reserve in pernicious anemia due to the decreased demand for hemoglobin building. Probably a number of active substances are represented in this liver fraction (Whipple, et al.), of which copper is undoubtedly one. Inasmuch as this active principle is not found in all livers it would indicate that it is a storage product rather than an intrinsic part of the liver substance (Goldhamer, et al.). It is interesting to note that the fraction G of Cohn used in pernicious anemia is of very little value in secondary anemia.

Furthermore, it is thought, but not without considerable question (Isaacs, Sturgis and Rennie), that there may be an intrinsic factor useful in secondary anemia in stomach (Sharp; Helmer, Fouts and Zerfas), inasmuch as a reticulocytosis as well as an increase in hemoglobin has been noted following its use. Even concentrated bile pigment has been shown to be useful especially in the more severe forms (Patek and Minot). However, it should not be thought that the rôle of liver has been definitely ascertained and unquestioned. Perhaps it would be fairer to consider the question in this way, using the words of Patek and Minot, "Iron cannot, of course, by itself make hemoglobin. Copper and apparently other mineral elements may supplement the effectiveness of iron in rats rendered anemic by a milk diet, but something more than minerals is required to form the complex hemoglobin molecule." Perhaps the issue can be clarified with the thought that while iron will, to a slight extent, stimulate reticulocytosis, and therefore, the release of new red blood cells, its main function is in hemoglobin building. And conversely, while liver will to a slight extent increase hemoglobin formation, its main function is in "stroma-building material" or release of red blood cells from the bone marrow. If the above be true, and there is much justification for it, then the obvious conclusion is that, in the hypochromic group in which the color index is low with a nearly normal red cell count but a low hemoglobin, iron alone or iron and copper would seem to be indicated. On the other hand, where both hemoglobin and red cell count are low both iron and liver would seem logical.

Undoubtedly when there is a greater understanding of the pathogenesis of the anemias, and when a definite classification is standardized and adopted, our knowledge of precise therapy will increase. Until then it seems fair to state that liver along with iron, and in selected cases copper, should be included in those things of value in secondary anemia (Murphy; Cheney and Niemand; Keeter and Yang).

The rôle of vitamins in the treatment of anemia is even a more disputed question. There is some evidence pointing toward Vitamin B2 being the extrinsic factor concerned in the reaction with the intrinsic factor of the normal human gastric juice, the lack of which specific hematopoietic reaction plays a part in the macrocytic types of anemia. This may, in fact, explain the curative effect of liver extract which is rich in Vitamin B2 in the anemia of sprue (Castle and Strauss; Castle). In this regard, yeast, which is rich in iron, copper and Vitamin B complex, has been shown to be distinctly valuable in certain of the nutritional anemias even when devoid of its iron and copper content (Parsons). Furthermore, it has been demonstrated that fresh foods have a higher efficiency in blood formation than their inorganic elements (Cook and Rivera). Vitamin A apparently has some beneficial effect in certain nutritional anemias (Koessler, Maurer and Loughlin; Scott and Delor), in spite of some evidence to the contrary (Sure, Kik and Walker; Saunders).

Thus, while the curative effect of Vitamin C in the treatment of anemia of scurvy is well known, and the probable beneficial effects of Vitamins B2 and A are receiving more and more attention, there is still much to be learned. Certain it is that deficiency states are being recognized and receiving greater attention in the etiology of the anemias, and it is probable that vitamins will be found concerned in some of these.

Somewhat the same thing applies to the rôle of amino acids. Of these phenylalanine, tyrosene, proline, argenin and glutamic acid seem to show special promise (Drabkin and Miller). However, there again our fund of knowledge is much too meager to draw any definite conclusion at the present time.

CONCLUSIONS

1. Iron is the one agent used in the treatment of secondary anemia, the value of which is unquestioned. It should be administered in large doses by mouth when possible. The ferrous form is preferable to the ferric and is more effective in an acid medium.
2. From the weight of evidence at present available it appears that copper enhances the effect of iron and is valuable in certain resistant cases, especially those in the hypochromic group.
3. There is a so-called "secondary anemia liver fraction" different from the "primary anemia liver fraction" which also seems a valuable adjunct to iron therapy.
4. Certain of the vitamins and of the amino acids show definite promise of being an aid in therapy.

BIBLIOGRAPHY

Bethel, F. H., Goldhamer, S. M., Isaacs, R., and Sturgis, C. C.: Diagnosis and Treatment of the Iron-deficiency Anemias. J. A. M. A., 1934, **103**, 797.

Cason, J. F.: Use of Copper and Iron in Treatment of Secondary Anemia in Children. J. Pediat., 1934, **4**, 614; Abst., J. A. M. A., 1934, **103**, 138.

Castle, W. B.: The Etiology of Pernicious Anemia and Related Macrocytic Anemias. Ann. Int. Med., 1933, **7**, 2.

Castle, W. B., and Strauss, M. B.: The Extrinsic (deficiency) Factor in Pernicious and Related Anemias. Lancet, 1932, **2**, 111.

Cheney, G., and Niemand, F.: Treatment of Secondary Anemia with "Secondary Anemia Liver Extract" and Iron. Am. J. M. Sc., 1932, **184**, 314.

Cook, D. H., and Rivera, T.: Preliminary Report on the Cure of Nutritional Anemias by one of the Legumes. Am. J. Trop. Med., 1933, **13**, 327.

Davidson, L. S. P., and Leitch, I.: The Nutritional Anemias of Man and Animals. Nutrition Abstr. & Rev., 1934, **3**, 901.

Drabkin, D. L., and Miller, H. K.: Hemoglobin Production. The Relief of Anemia, Due to Milk Diet by Feeding Amino Acids. J. Biol. Chem., 1931, **90**, 531; Ibid., 1931, **93**, 39.

Goldhamer, S. M., Isaacs, R., and Sturges, C. C.: The Rôle of the Liver in Hematopoiesis. Am. J. M. Sc., 1934, **188**, 193.

Hart, E. B., Steenbock, H., Waddell, J., and Elvehjem, C. A.: Iron Nutrition. Copper as a Supplement to Iron for Hemoglobin Building in the Rat. J. Biol. Chem., 1928, **77**, 797.

Heath, C. W., Strauss, M. B., and Castle, W. B.: Quantitative Aspects of Iron Deficiency in Hypochromic Anemia; The Parenteral Administration of Iron. J. Clin. Investigation, 1932, **11**, 1293.

Helmer, O. M., Fouts, P. J., and Zerfas, L. G.: Relationship of the Intrinsic Factor to a Hematopoietic Material in Concentrated Human Gastric Juice. Am. J. M. Sc., 1934, **188**, 184.

Isaacs, R., Sturgis, C. C., and Rennie, T. A. C.: Treatment of Pernicious Anemia (Addison-Biermer Type) with Desiccated Stomach. Folia haemat., 1930, **42**, 397.

Keefer, C. S., and Yang, C. S.: Treatment of Secondary Anemia: A Study of the Results in 126 Cases. Arch. Int. Med., 1931, **48**, 537.

Koessler, K. K., Maurer, S., and Loughlin, R.: Relation of Anemia, Primary and Secondary, to Vitamin A Deficiency. J. A. M. A., 1926, **87**, 476.

Mettier, S. R., and Minot, G. R.: Effect of Iron on Blood Formation as Influenced by Changing the Acidity of the Gastroduodenal Contents in Certain Cases of Anemia. Am. J. M. Sc., 1931, **181**, 25.

Mills, E. S.: Treatment of Idiopathic (Hypochromic) Anemia with Iron and Copper. Canad. M. A. J., 1930, **22**, 175.

Minot, G. R., and Heath, C. W.: Response of the Reticulocytes to Iron. Am. J. M. Sc., 1932, **183**, 110.

Mitchell, H. S., and Vaughn, M.: The Relation of Inorganic Iron to Nutritional Anemia. J. Biol. Chem., 1927, **75**, 123.

Murphy, W. P.: Treatment of Secondary Anemia, with Special Reference to the Use of Liver Extract Intramuscularly. Arch. Int. Med., 1933, **51**, 656.

Myers, V. C., and Beard, H. H.: Studies in the Nutritional Anemia of the Rat. J. Biol. Chem., 1931, **94**, 89.

Ottenberg, R.: Reclassification of the Anemias. J. A. M. A., 1933, **100**, 1303.

Parsons, L. G.: Studies in Anemias of Infancy and Early Childhood. Introduction. Arch. Dis. Childhood, 1933, **8**, 85.

Patek, A. J., Jr., and Minot, G. R.: Bile Pigment and Hemoglobin Regeneration. Am. J. M. Sc., 1934, **188**, 206.

Rohland, R.: Antianemic Action of Monovalent and Bivalent Copper. Ztschr. f. Kinderh., 1934, **56**, 546; Abst., J. A. M. A., 1934, **103**, 1818.

Sachs, A., Levine, V. E., and Fabian, A. A.: Copper and Iron in Human Blood. Arch. Int. Med., 1935, **55**, 227.

Saunders, C. W.: Nutritional Value of Chlorophyll as Related to Hemoglobin Formation. Proc. Soc. Exper. Biol. & Med., 1925–1926, **23**, 788.

Scott, E., and Delor, C. J.: Nutritional Anemia. Ohio State M. J., 1933, **29**, 165.

Sharp, E. A.: Secondary Anemia: A Preliminary Report on Stomach. J. Michigan M. Soc., 1931, **30**, 927.

Sure, B., Kik, M. C., and Walker, D. J.: Effect of Avitaminosis on Hematopoietic Function. J. Biol. Chem., 1929, **83**, 375, 387.

Titus, R. W., Cave, H. W., and Hughes, J. S.: Manganese-Copper-Iron Complex as a Factor in Hemoglobin Building. J. Biol. Chem., 1928, **80**, 565.

Waddell, J., Elvehjem, C. A., Steenbock, H., and Hart, E. B.: Iron in Nutrition. Iron Salts and Iron Containing Ash Extracts in the Correction of Anemia. J. Biol. Chem., 1928, **77**, 777.

Whipple, G. H.: Hemoglobin Regeneration as Influenced by Diet and Other Factors; Nobel Prize Lecture. J. A. M. A., 1935, **104**, 791.

Whipple, G. H., Robscheit-Robbins, F. S., and Walden, G. B.: Blood Regeneration in Severe Anemia; Liver Fraction Potent in Anemia Due to Hemorrhage. Am. J. M. Sc., 1930, **179**, 628.

Thrombo-angiitis Obliterans (Buerger) XI. Treatment of 524 Cases by Repeated Intravenous Injections of Hypertonic Salt Solution; Experience of 10 Years.—The results obtained in the treatment of patients suffering with thrombo-angiitis obliterans by repeated intravenous injections of hypertonic salt solution can now be surveyed from an experience of 10 years. This method of treatment was introduced by the writer in 1923, and a preliminary report was published in 1926, tentative conclusions being drawn from the results obtained in 66 patients. By 1930 the number of patients treated had increased to 289, and a more accurate estimate of the value of the method was then presented. The series now includes 524 cases, and the results previously reported have been consistently duplicated and improved. This summary gives a true picture of what this form of treatment may accomplish.

The experience gained from the observation and treatment of this group of patients has justified the conclusion that thrombo-angiitis obliterans is not necessarily the terrible, mutilating disease it is popularly thought to be. By applying the knowledge we already have, the disease can be arrested, amputations can be avoided, patients can be restored to good health, and recurrence of trouble can be prevented. Failures in treatment are practically always limited to those cases in which the condition is not recognized early enough and individuals are first seen in a hopelessly advanced state of the disease, or the patients refuse to coöperate completely in their treatment . . . .

. . . . It may be confidently stated that the treatment of patients with thrombo-angiitis obliterans by means of repeated intravenous injections of hypertonic saline solution is absolutely without danger or harmful effect. Over 5,000 injections of this kind are given every year by me, or under my direct supervision, and the total number of treatments which have been given is well over 35,000. There have been no deaths nor accidents of any kind. . . .

Summary. During the past 10 years, 524 patients with thrombo-angiitis obliterans have been treated by means of repeated intravenous injections of 5 per cent sodium chloride solution.

Improvement has resulted in 434, or 83 per cent, of these cases, evidenced by cessation of pain, improvement in walking, increase of oscillometer readings, increased temperature of extremities, healing of ulcerations, and reopening of obliterated vessels.

No dangerous reactions or untoward results have been noted in over 35,000 injections.

Seven and six tenths per cent of all patients treated have required amputation of an extremity.

Conclusions. Thrombo-angiitis obliterans is not a progressive disease if patients discontinue the use of tobacco. Repeated intravenous injections of hypertonic salt solution is a simple and effective method of treatment for this condition.

Extract from article by Samuel Silbert, M.D., New York City, *Surgery, Gynecology and Obstetrics, August, 1935, p. 214.*

MYCOTIC DISEASES OF THE EAR*

Ella M. A. Enlows, Ph.D, M.D.

Washington

The purpose of this paper is to stress the fact that otomycosis is frequently overlooked, and that it may be diagnosed with certainty by simple methods. Microscopic examination of material obtained from the external auditory canal, middle ear or mastoid and culture of this material upon canned string beans are the necessary procedures.

Mycotic disease of the ear† is primarily an infection of the skin lining the external auditory canal, but may extend to the mucous membrane of the middle ear and mastoid (Chisolm and Sutton; Forsyth; Castellani; Hatch and Row; Plaut; Whale; Love; Koenig; Maillard; and others). Otomycosis has been recognized since the middle of the eighteenth century. Mayer; Andral and Gavarret; and Pacini were probably the earliest investigators to describe fungi obtained from diseased external auditory meati. Kuchenmeister (Mayer) and Hallier placed those of Mayer and Pacine under the Aspergilli, while Andral and Gavarret described their fungus as a Penicillium. During the next decade a number of studies were published in this and other countries. Since that time still more have appeared from various parts of the world until a rather voluminous literature has accumulated, and a number of different fungi have been described:

Saccharomyces ellipsoides Rhees (Maggiora and Gradenigo).
Saccharomyces roseus (sp. nov.) found by Maggiora and Gradenigo in the eustachian tube.
Monilia rhoi (Castellani).
Lichtheimia ramosa Lindt (Castellani).
Lichtheimia corymbifera Cohn (Siebenmann, Castellani).
Rhizomucor septatus von Bezold (Siebenmann).
Ustilago carbo (Castellani).
Tilletia levis (Castellani).

---

* Read before the Annual Scientific Assembly of the Society, May 2, 1935.

† Synonyms: Otomycosis; otitis externa parasitica; otomycosis aspergillina; myringomycosis; mykomyringitis; myringomykosis aspergillina; mycotic eczema; tropical ear; aspergillosis of the ear, etc.

Tricothecium roseum Persoon (Steudener; Bezold and others).
Sterigmatocystis spp. which Thom places under *Aspergillus*.
Aspergillus niger, fumigatus, flavus, repens, herbarorum (many).
Pencillium glaucum (many).

In great predominance among the fungi reported are the Aspergilli, belonging to the Moniliaceae. This discussion will deal only with that group.

LABORATORY DIAGNOSIS

Material removed from the ear is placed in saline solution on a microscopic slide, covered with a thin cover-slip and examined under medium power (8 mm. objective and No. 6 ocular). If a fungus is present there will be seen colorless septate mycelial filaments and faintly brownish green conidia or spores and the large spore-bearing heads. These heads are borne on a stalk which springs from a foot-cell formed in the hyphae. The stalk enlarges toward its apex into a vesicle upon the surface of which arise short clustered cells (sterigmata) which in turn bear the conidia or spores. If too much exfoliated epithelium, cerumen, etc., is present not much can be seen with certainty until a little experience is acquired. In such cases, therefore, it is advisable to add 10 per cent sodium hydroxide solution to the slide, ring the cover-slip with vaseline and examine after an interval of 12 to 18 hours.

If fruiting bodies are present (the spore-bearing heads) there will be seen scattered over all fields many of the small conidia or spores.

Identification of the species is made from a careful examination of the fruiting head and its conidia, together with its cultural characteristics when transplanted to a suitable medium such as Czapek's solution agar or sterilized canned string beans (in test-tubes). The following is a brief description of the 3 species, *Aspergillus niger, fumigatus* and *nidulans* (following Thom):

Aspergillus niger.—The spore-bearing heads are globose, dark, and bear upon their surfaces two series of sterigmata. The conidia or spores when ripe are globose with a brownish green tinge and somewhat rough, averaging about 4.5 microns in diameter; they are borne in chains upon the sterigmata. Cultures upon canned string beans are brownish to purplish black to a definite coal black. Underneath this black surface layer there will be found a dirty white felt-like layer adhering rather closely to the surface of the medium. The black surface layer is much more loosely constructed than that of *Aspergillus fumigatus* or *nidulans*—somewhat like coarse, thick plush.

Aspergillus fumigatus.—The spore-bearing vesicles or heads are somewhat flask-shaped and measure about 20 to 30 microns in diameter, bearing *one* series of sterigmata, upon which chains of conidia form in solid columns up to 400 by 50 microns, although usually shorter. The spores are dark green when seen in mass; singly they are barely colored, globose, averaging about 3 microns in diameter. The mycelium of this species grown upon canned string beans forms a loose velvety mass, dark olive green in color. Upon other media it may be very dark, almost brownish black.

Aspergillus nidulans.—The heads are somewhat globose, with a *double* series of sterigmata or conidia bearing cells. The conidia are globose, and usually smaller than those of *Aspergillus niger,* measuring 3 to 3.5 microns in diameter, smooth, but occasionally rough and somewhat greenish. On canned string beans the colonies are white to yellowish green, becoming darker and more olive green when older.

The aspergilli produce perithecia containing the ascospores when grown under suitable conditions. I have never found them in material obtained from the ear.

In view of the fact that *Pencillium spp.* has been reported in the literature rather frequently I have searched carefully for species of this genus, but they have never been seen nor grown in culture from any of the cases studied.

The appearance of the material removed from the ear can not be depended upon for definite diagnosis. It varies so markedly even in the same individual seen at different times. If no fruiting bodies are present it may be creamy white, flaky and moist. If they are present it may vary from a pale greenish yellow through all the different combinations of green, brown and black to coal black. The amount of cerumen present also affects the color and texture. If the plug has been present for a long time, as is frequently the case, it may be very dark and so tough as to require sectioning with a knife. Usually, however, small bits may be teased off quite easily for examination.

SYMPTOMS AND SIGNS

Pruritus, fullness and mild to excruciating pain are the most constant symptoms. Deafness of varying degree is frequent. Tinnitus and vertigo occur infrequently. Chronic discharge is complained of when there is a concomitant bacterial infection, either of the canal or middle ear. There is, of course, some leukocytic response to the mycotic infection, but we have never found an otorrhea except when bacteria were present. When the external canal alone is involved the bacteria are probably secondary invaders, but this point is difficult to determine in a location where staphylococci are constantly present.

In the more severe cases, after the mass filling the canal has been removed, the canal will be found macerated and erythematous, frequently with a number of hemorrhagic points from which the epithelial cells have been eroded. The drum may show only a thickened granular appearance with absent light reflex, or it may be damaged severely, markedly thickened, congested and covered with flaky exudate. In the long-standing cases granular elevations may be seen in the canal and about the margins of the drum. Definite areas of ulceration are infrequently found. When these occur on the drum perforation follows. As mentioned above staphylococci are frequently co-invaders and furunculosis may accompany the mycotic infection.

If no treatment is used after the preliminary examination and removal of the débris and the ear is examined again after a few days one is astonished at the rapidity of growth of the fungus. The entire canal may be filled within 24 to 48 hours after removal. In one case observed 5 years ago (E.B.) at the end of one week after the first examination the fungus (*Aspergillis niger*) had grown only in discrete colonies over the entire surface of the canal and drum, producing a definite polka-dot appearance.

Treatment

A great proportion of the literature cited deals with this phase of the subject. Koenig attacked the problem from the physical-chemical standpoint. He found that many substances which readily killed bacteria had no effect upon the aspergilli. This he believed to be due to the high lipoid and albuminous content of the mycelial and conidial cells. For example, an 8.1 per cent (normal) solution of sodium sulphocyanide did not destroy the aspergilli, but a 2 to 3 per cent solution readily killed bacteria. He produced an enhancement of the action of certain solutions by the addition of sodium taurocholate. He found that calcium chloride, calcium iodide, calcium bromide, lithium sulphocyanide, calcium sulphocyanide would destroy the conidia (spores), but did not markedly affect the growth of the mycelium. He decided that alcohol (95 per cent) was effective because of its low surface tension. Chisolm and Sutton reported 9 cases of otomycosis treated with potassium iodide orally administered. They allowed an interval of 10 to 14 days after symptoms had subsided following the use of the potassium iodide internally, during which local treatment was used daily (alcohol 95 per cent, or 2 per cent salicylic acid in 70 per cent alcohol). Then followed another 14-day period of the potassium iodide treatment. In obstinate cases the treatment was continued for 6 months, alternating 2 weeks of treatment with 2 weeks of rest.

Schamberg and Kolmer tested 21 chemical compounds and 9 aniline dyes for their fungistatic properties in vitro, and found that iodine was superior to all in restraining the molds used in the tests. Mercurophen (sodium orthonitrophenolate) was the best fungicide. Crystal violet was the best of the aniline dyes. Salicylic acid was of little use. The following have been used by various investigators: Absolute alcohol, alum and calcined magnesia, alcoholic solutions of mercuric chloride, boric acid and zinc oxide insufflations, copper sulphate (1 per cent as packs), oil of cade, chlorinated lime, hydrogen peroxide, iodine, iodoform, Labarraque's solution, lead acetate, mercuric chloride, naphthaline, phenol, phenol and iodine in liquid petrolatum, phenolated glycerine, potassium permanganate, potassium iodide in glycerin (with and without laudunum), potassium arsenite, salicylic acid, silver nitrate, sodium bicarbonate, sodium salicylate, tannic acid in glycerin, tannic acid in 50 per cent alcohol, etc. Electricity and ultraviolet rays have been tried with but little effect.

My own treatment has been varied and I have not found a method specific for all cases. Most successful has been the following. Irrigation is performed with warm physiological saline solution to remove as much as possible of the impacted mass. Gauze packs are then inserted into the canal soaked with a saturated solution of aluminum acetate which are allowed to remain 12 to 18 hours, being kept moist by the patient by the frequent addition of a 2 per cent solution of aluminum acetate. At the end of this time a great deal of the swelling and redness will be reduced. The canal is again irrigated, dried and 10 per cent solution of cocaine instilled, and allowed to remain 20 minutes. The cocaine is removed, the canal dried and Gram's iodine solution applied, full strength. Since potassium iodide may prove very irritating to some patients it is essential that the patient be seen on the day following its use. Daily treatment thereafter for 1 week, followed by thrice weekly visits for 2, 3 or more weeks should be the procedure if cure is expected. During the first week the daily treatment consists of thoroughly cleansing the canal with hydrogen peroxide, drying and instilling a thick paste of aluminum acetate. If there are no signs of return infection the same treatment is continued after longer intervals. If there is a return, the Gram's iodine solution is again used as before and the patient is allowed to use it at home, diluted 5 times. When iodine is not well tolerated the patient is instructed to use the 2 per cent aluminum acetate daily. Four cases which did not respond very well to the above treatment were entirely cured by the use of 25 per cent silver nitrate following the preliminary treatment with aluminum acetate, the silver in turn being followed by alcohol, 70 per cent, which the patients continued to use at home daily. In still another case it was only when 5 per cent alcoholic (30 per cent) solution of sodium bicarbonate daily for 2 weeks was used that the fungus was eliminated. This patient still continues to use the bicarbonate solution every 2 weeks, and so far there has been no return growth (16 months).

REPORT OF CASES

Case 1: (E. B.).—The chief complaint was frequent attacks of marked pruritus with occasional dull pain and the presence of a soft flaky exudate, dark in color. Examination revealed considerable swelling and erythema of the canal wall. The floor was covered with a flaky, dirty-gray mass, removed with difficulty by irrigation. The drum was lusterless, thickened, granular, the small vessels standing out prominently. Hydrogen peroxide (diluted 1 in 3 with water) was used for a thorough cleansing. *Aspergillus niger* was found by microscopic examination. The patient was instructed to return next day, but was not seen until a week later. At this time the entire canal wall and drum were covered by a thin grayish membrane over which were scattered in irregular manner small black dots, which were found microscopically to be masses of the spore-bearing heads of the fungus. At this time packs of aluminum acetate (saturated solution) were inserted, removed at the end of 18 hours and Gram's iodine solution (diluted once) instilled. This caused considerable pain, which was allayed by saline irrigation. On the following day aluminum acetate in saturated solution was again instilled and allowed to remain for 1 hour when it was removed by saline irrigation and Gram's iodine applied diluted greatly (3 drops to 1 dram of warm water). The patient was absent from the city for some time and when next seen, 2 months later, there were a few small flakes here and there, but the pruritus was very marked. The same treatment was repeated, and since she lived some distance from the city, she was allowed to use the dilute Gram's iodine solution at home daily for a week, then dilute hydrogen peroxide followed by plain mineral oil for a week. This, together with an occasional visit to the office for examination has been sufficient to prevent a return of the infection.

Case 2: (Q. S.).—This patient had been told by his family physician that he had middle-ear abscesses, chronic, bilateral. When first seen there was so much swelling that no examination of the canals was possible. The entire auricle on each side was involved in the swelling and erythema. With much difficulty very small packs of the aluminum acetate were finally inserted for a short distance and the patient instructed to keep both ears entirely covered with gauze moistened with a 2 per cent solution of aluminum acetate. At the end of 18 hours it was possible to remove a large amount of debris from both canals. Microscopic examination revealed the presence of *Aspergillus fumigatus*. Large numbers of polymorphonuclear leukocytes were present, but there was no microscopic evidence of infection of the mucous membrane of the middle ear. Therefore, although it was still impossible to see but a small portion of the drum it was felt that the infection was entirely an external affair. With great difficulty the fungus was finally eradicated and the canals were again normal in appearance, except for a dullness of the skin, due no doubt to thickening of the epidermal layers. The drum was also dull and granular. At the end of the 3 years, following a period of daily swimming the patient was seen late one night because of severe earache accompanied by a rise of 1 degree in temperature. Only the right ear was involved at this time, but the swelling was very marked, extending posteriorly over the mastoid. Because of this, and also because of the marked systemic reaction and inability to visualize the drum, roentgenograms of the mastoids were made. The right mastoid was entirely clear. The same treatment was again used plus Gram's iodine solution (diluted twice) and repeated triweekly for a month. At the end of this time the fungus was eradicated. The patient was examined a month ago (2 years after the last attack) and there was no evidence of infection.

Case 3: (A. B. M.).—In this case the mycotic infection was superimposed upon a chronic otitis media present since early childhood. An almost coal-black exudate was found each time the patient was examined. The patient experienced no pain, only a feeling of fullness and occasionally some pruritus. The same treatment was used as for the above cases, and the patient has continued to use the aluminum acetate drops in her ear daily when the pruritus returns. She was examined about a week ago and there was no evidence of fungous infection (*Aspergillus niger*).

Case 4: (E. R.).—This patient is discussed because of the possible allergic part played by the fungus. He was seen first 3 years ago when he complained of a burning pain and fullness. The canal was swollen and inflamed and contained a white, scaly exudate which was found microscopically to consist of desquamated epithelial cells, polymorphonuclear leukocytes, and here and there the septate mycelium of a fungus. No fruiting bodies were found, nor did any ever develop upon culture. This was very disappointing inasmuch as the flaring up of the ear infection was always accompanied by an erythema and slight swelling of the cheek and scalp on the side of the affected ear.

The other cases studied will not be reported in detail since they offer nothing unusual.

Laboratory Studies

The first mold obtained from the human ear (about 15 years ago) was identified for me as an *Aspergillus fumigatus* by Dr. Charles Thom, of the United States Department of Agriculture, who has devoted many years to thorough investigations of the common molds. This culture and another of *Aspergillus niger* kindly furnished by Dr. Thom were used as type cultures for this study. Since that time 33 molds have been isolated from as many cases.

Of these 33 cases *Aspergillus niger* was found to be the etiological agent in 14, *Aspergillus fumigatus* in 6, and *Aspergillus nidulans* in 3. Of the remaining 10, abundant mycelial filaments were demonstrable but no fruiting bodies found either in the fresh material or in cultures. A few spores of *Alternaria sp.* were found in association with the *Aspergillus niger* in 1 case. In all of these cases the infection was primarily in the external auditory meatus. In 1 case in which the infection was superimposed upon a chronic otitis media of bacterial origin the fungus was found in the middle ear (*Aspergillus fumigatus*). In another upon which a radical mastoidectomy had been done a number of years earlier the fungus was found covering the entire mastoid cavity (*Aspergillus fumigatus*).

The first 4 cultures of *Aspergillus fumigatus* obtained from the ear were tested for pathogenicity in the rabbit and guinea pig. In these experiments I was assisted by Dr. Mary E. Lapham of North Carolina, who was working at that time upon aspergillosis of the lung at the National Institute of Health, Washington, D. C. The results in brief were that this fungus was shown to be definitely pathogenic when injected intravenously or intraperitoneally in both the rabbit and the guinea pig, although the rabbit was the more susceptible animal. The liver, spleen and lungs were the chief sites involved, where characteristic white nodules were produced, varying in size from that of a pin point to 1 and more centimeters in diameter. Frozen sections of these nodules revealed a structure not unlike the periphery of a tubercle due to *Mycobacterium tuberculosis*. There was, however, no caseated center, but instead a collection of lymphoid and plasma cells together with many polymorphonuclear leukocytes. Among these cells could be seen hyphal filaments of the fungus, bearing here and there chlamydospore-like cells.

However, all our efforts to produce disease of the external auditory canal failed except when trauma was produced. We were then able to secure growth of the fungus in the canal with alterations in the structure of the canal wall not unlike that seen in the human ear. Considerable time elapsed from the time of inoculation until the first evidence of infection was observed, usually 14 to 21 days. In 1 rabbit whose ear had received several rather deep scarifications swelling and erythema followed by multiplication of the fungus occurred in 8 days after inoculation.

Discussion

Doubt has been expressed by most investigators as to whether these fungi are ever capable of infecting the intact skin of the external auditory canal. Chisolm and Sutton state that according to Castellani these fungi set up an inflammatory reaction with serous exudation due to mechanical irritation and also to toxins secreted by the fungus. This toxin may cause intense reaction of the skin and lead to necrosis and perforation of the drum. Bodin and Gautier, Lucet, and Pettinari have demonstrated substances toxic to laboratory animals in broth filtrates of these fungi. According to Castellani, Ceni and Besta have isolated toxic products soluble in ether and alcohol which act on the muscular and nervous systems of dogs and rabbits.

Oshima, and Oshima and Church, have shown that the Aspergilli produce a number of proteolytic and other enzymes: Lipase, amylase, inulase, raffinase, invertase, emulsin, urease, protease, nuclease, rennit. The proteolytic enzymes were found to be able to digest native proteins such as beef-muscle, egg-white, edestin and casein with the production of amino acids.

Carnevale-Ricci, by repeated passage of *Aspergillus fumigatus* in the rabbit succeeded in producing infection of the canal in the presence of very slight injury. His histological studies showed that typical granulomatous granules were formed in the canal and middle ear. He reports involvement of the labyrinth in 1 of his rabbits inoculated with this fungus.

The skin of the external auditory meatus is very sensitive, hence easily traumatized. Therefore, we should not be surprised to find certain of the molds becoming parasitic in such a location—they are so abundant upon jellies, decomposing fruits, vegetables, etc., and in damp cellars.

Oil was long considered a factor in the inception or progress of otomycosis. Miller and others have shown that this is not the case. Many of the early observers believed that retained masses of cerumen were necessary for the initial lesion; they do produce trauma by water retention and subsequent maceration, and in this way provide a susceptible surface for the development of the fungus. We know also that cerumen, particularly when dry and scaly is provocative of pruritus which, of course, leads to traumatic lesions. Eczematous conditions produce similar results, as is also true of the chronically discharging ear from a middle ear or mastoid lesion.

It is possible that climatic conditions may make it possible for the fungus to develop pathogenically when there is little or no trauma such conditions as obtain in the more tropical locations, where this disease is often included under the term "tropical ear" (Forsyth).

Summary

Mycotic diseases of the ear have been recognized since the middle of the eighteenth century. A number of different genera have been identified. Infection of mycotic origin is frequently overlooked. Diagnosis is certain and easy by microscopic and cultural methods. Sterilized canned string beans are very useful as a culture medium. Studies have shown that *Aspergillus fumigatus* is definitely pathogenic for laboratory animals. Trauma is apparently necessary for the initial lesion. Treatment is discussed.

BIBLIOGRAPHY

Andral, G., and Gavarret, J.: Penicillium Glaucum Obtained from the External Auditory Canal. Ann. de chim. et Phys., Par., 1843, **8**, 385.

Bezold: Die Entstehung von Pilzbildung im Ohr. Monatschr. f. Ohrenh., Berlin, 1873, **7**, 81.

Bodin, E., and Gautier, L.: Note sur une toxine produite par l'Aspergillus fumigatus. Ann. de l'Inst. Pasteur, Par., 1906, **20**, 209.

Carnevale-Ricci, F.: Micosi sperimentali dell'orecchio. Boll. d. Soc. med.-chir. di Pavia, 1927, **2**, 129 and 583.

Castellani, A.: Fungi and Fungous Diseases. Arch. Dermat. & Syph., 1928, **17**, 61, 194 and 354.

Castellani, A., and Chalmers, A. J.: Manual of Tropical Medicine, London, 1919, p. 1027.

Ceni, C., and Besta, C.: Ueber die toxine von Aspergillus fumigatus und A. flavescens und deren Beziehung zur Pellagra. Centralbl. f. allg. Path. u. path. Anat., Jena, 1902, **13**, 930.

Chisolm, J. J., and Sutton, A. C.: Otomycosis. Report of Nine Cases Treated with Potassium Iodid. Arch. Otolaryngo., 1925, **2**, 543.

Forsyth, J. M.: Tropical Ear. Ann. Trop. M. & Parasitol., Liverp., 1925, **18**, 61.

Hallier, E.: Die Pflanzlichen Parasiten des menschlichen Körpers. Leipzig, W. Engelman, 1866, p. 78.

Hatch, W. B., and Row, B.: Fungus Diseases of the Ear. Lancet, London, 1900, **2**, 1561.

Koenig, C. J.: Au sujet de l'otomycose. Oto-rhino-laryng. internat., 1929, **13**, 183.

Koenig, C. J.: Otite mycotique. La physico-chimie de l'antisepsie. Oto-rhino-laryng. internat., 1930, **14**, 30.

Lapham, M. E.: Aspergillosis of the Lungs and its Association with Tuberculosis. J. A. M. A., 1926, **87**, 1031.

Love, J. K.: Case of Otomycosis of the Middle Ear. Tr. Glasgow Path. & Clin. Soc., 1904–5, **10**, 192; also, Glasgow M. J., 1905, **64**, 122.

Lucet, A.: Étude experimentale et clinique sur l'Aspergillus fumigatus. Bull., Société Centrale de méd. vét., 1896, **14**, 575.

Maillard, J. P.: Les mycoses du conduit auditif externe. These pour le Doctorat en Medicine. Paris Theses. Jouve et Cie., Editeurs, Paris, 1933, 73 pp.

Mayer: Beobachtung von Cysten mit Fadenpilzen aus dem äussern Gehörgange eines Mädchens. Arch. f. Anat., Phisol. u. wissensch., Leipz., 1844, p. 405.

Mayer: Quoted by Küchenmeister, F.: Die in und an dem Körper des lebenden Menschen vorkommenden Parasiten. Leipz., 1855, **2**, p. 120.

Miller, J. W.: Otomycosis: Its Relative Frequency. J. A. M. A., 1927, **88**, 1077.

Oshima, K.: Promising Development of the Soya Bean Sauce. Studies on the Protease of the Aspergillus Oryzae-flavus Group and its Rôle in Shoyu Brewing. Am. Food J., 1922, **17**, 30.

Oshima, K., and Church, M. B.: Industrial Mold Enzymes. J. Indust. Engin. Chem., 1923, **15**, 67.

Pacini, F.: Sopra una muffa parasita (Mucedo) serluppatasi nel condotta auditivo esterno. Rep. Gazz. med. ital. feder. tosc., 1851, **2**, 1.

Pettinari, V.: Ricerche sperimentali sull'aspergillosi (Aspergillus fumigatus). Boll. d. Ist. sieroterap., milanese, 1927, **6**, 29 and 115.

Plaut, H. C.: Otomykosen. In—Kolle, W., and Wassermann, A.: Handbuch der pathogenen Mikroorganismen, Jena., 1913, **5**, 33.

Schamberg, J. F., and Kolmer, J. A.: Studies in the Chemotherapy of Fungus Infections. I. The Fungistatic and Fungicidal Activity of Various Dyes and Medicaments. Arch. Dermat. & Syph., 1922, **6**, 746.

Siebenmann, F.: Neue botanische und klinishe Beitrage zur Otomykose. Ztschr. f. Ohrenh., Wiesb., 1888–9, **19**, 7.

Steudener, F.: Zwei neue Ohrpilze nebst Bemerkungen über die "Myringomycosis." Arch. f. Ohrenh., Würzb., 1870, **5**, 163.

Thom, C., and Church, M. B.: The Aspergilli. Baltimore, Williams & Wilkins Co., 1926.

Whale, H. L.: Otomycosis: Colony and Microscopic Slide of Aspergillus Fumigatus. Proc. Roy. Soc. Med.. Lond. Otol. Sect. 1915–16. 9, 1.

HEMANGIOMA OF THE OVARY*

Report of a Case in a Child Three and One-Half Years of Age

J. P. Shearer, M.D.

Washington

Report of Case

The patient, a girl 3½ years old, was first seen by me on July 20, 1933, in consultation with Dr. Bowne. For a short time previous to this date the child had suffered a mild intestinal upset accompanied by diarrhea and vomiting. The mother brought the child to Dr. Bowne on account of these symptoms, and on examination he found quite a large abdominal tumor which the mother had never noticed. The previous history was entirely negative. Physical examination was essentially negative except for the presence of a large abdominal tumor filling the lower abdomen almost to the umbilicus, quite tender, somewhat fixed in position and apparently coming from the left side. On rectal examination the abdominal mass was found to be filling the pelvis. Moderate distention was present. The child was well nourished, no abnormalities were noted and she did not appear acutely ill. The temperature was 100°F., the pulse 100 per minute. The patient was hospitalized, and laboratory examinations including x-ray of the colon were made. The white blood cells numbered 12,000, with the remainder of the blood picture within normal limits. The urine was normal. Fluoroscopy after a barium enema showed some distortion of the sigmoid colon due to the presence of the tumor, but no filling defects in the bowel were observed. No positive diagnosis as to the exact nature of the tumor was made, but abdominal operation was advised and the patient was operated upon July 22, 1933. The tumor was an irregular, hard tumor involving the left ovary, uterus, and right ovary to some extent, but apparently starting in the left ovary. The uterine and ovarian vessels were large and tortuous on either side, particularly on the left. There were dense adhesions between this tumor mass and the sigmoid and the parietal peritoneum of the pelvis, including the posterior cul-de-sac. Complete extirpation of this tumor was done, but in order to remove the entire tumor it was necessary to remove both ovaries, both tubes and the uterus. In fact, all of these organs were replaced by the large irregular mass, and it was impossible to differentiate ovarian tissue from uterine tissue in the gross specimen. No great amount of difficulty was encountered in the extirpation of the tumor, and the patient made an uneventful recovery following operation and has remained well until this winter, when she had an attack of lobar pneumonia which was followed by empyema. Rib resection was done for the empyema and at the present time the patient is well. She is now 5½ years old and her growth and development have been normal in every way. One wonders, however, what changes or abnormalities in development she will show during puberty due to the absence of her ovaries and uterus. The tumor, after its removal, was found to be quite irregular, contained a definite capsule, was hard, and when sectioned grossly showed numerous large blood spaces with areas of softening and some areas of calcification in the intervening connective tissue. On gross examination it seemed to be primary in the left ovary and was infiltrating the uterus and other ovary by direct extension of growth into these. Microscopic examination of the tumor made by Dr. Cajigas reads as follows: "Sections made through each one of the 3 masses show about the same picture, that is, a typical hemangioma consisting of numerous blood vessels of irregular size supported by connective tissue stroma. There are areas of necrosis of considerable size throughout the tumor mass with calcification in some points. Careful examination fails to reveal any evidence of malignancy." The pathological diagnosis was hemangioma of the pelvis apparently primary in the left ovary.

---

* Read before the Annual Scientific Assembly of the Society, May 2, 1935.

Hemangioma is a form of vascular tumor and is also known as angioma. These are names applied to a group of tumors composed of blood vessels of new formation capable of anatomic existence in the organism, originating essentially by proliferation of preëxisting blood vessels (capillaries, arteries or veins) in prenatal or postnatal life or from a primitive, detached embryonal matrix of angioblasts. They do not include abnormal dilatations such as ectasia, telangiectasia, aneurysms or varicose veins. They are usually of prenatal or congenital origin, often multiple, often hereditary and rarely associated with malignant tumors. All are aggravated by trauma or infection. They may involve any organ in the body and are most frequent in the skin and subcutaneous tissue, muscle, and the highly vascularized organs such as the liver, spleen, thyroid, brain and the female genital organs.

Pathologically, there are all gradations from the tumor consisting entirely of endothelial-lined blood spaces to the tumor with large areas of connective tissue surrounding the blood spaces which have undergone infection, necrosis and calcification. Also, there are all gradations from one small group of communicating vessels to the extensive communicating blood spaces which often assume such large proportions as to be entirely inoperable.

The visceral hemangioma are comparatively common and give symptoms either by pressure as their growth increases, or by rupture and internal hemorrhage which in several reported cases has been fatal and which has been the first and only symptom. The hemangioma of the subcutaneous tissues and muscles of the extremities are sometimes so extensive as to necessitate amputation of the involved extremity.

Hemangioma of the female generative tract is comparatively rare. In 1930, Horgan reported a case of cavernous hemangioma of the uterus which manifested itself by severe uterine hemorrhage; at this time he collected 21 cases of this condition from the literature, 5 of them of the angiomatous type.

The treatment of visceral hemangioma is extirpation of the tumor if this is feasible. In the case reported, this was possible but necessitated a very radical operation. If extirpation is impractical, ligation of the vessels supplying the hemangioma is the next best procedure. Surgical diathermy, X-ray and radium are also useful in the treatment of visceral hemangioma, and some brilliant results with these later forms of treatment have been reported. The small hemangiomata of the extremities particularly respond favorably to surgical diathermy and radium.

The Incidence and Clinical Manifiestations of Lymphogranuloma Inguinale in New Orleans. . . . . Lymphogranuloma inguinale, which has also been termed the fourth venereal disease (Cole), the sixth venereal disease (Stannus), and lymphopathia venereum (Sulzberger and Wiese), is caused by a filtrable virus which can be transmitted to white mice, certain species of monkeys, and other experimental animals. Following the technic of Hellerstrom and Wassén, and of Levaditi and his co-workers, we were able to isolate the virus in seven cases of acute inguinal buboes in patients with positive Frei reactions, all of whom were life-long residents of Louisiana. In each of these cases intracerebral inoculation of white mice or monkeys (common marmosets) produced the same fatal meningo-encephalitis described by the Continental investigators. Furthermore, the virus obtained from the brain emulsions of infected animals could be transmitted to other animals of the same or another species, and up to the present time strain L20 has been transmitted in our laboratory through fifteen passages (v. Haam and Lichtenstein). Antigens prepared from 20 per cent sterile brain emulsions of these animals by the Frei technic apparently possess the same diagnostic value as those obtained from the pus of acute inguinal buboes in human cases of lymphogranuloma inguinale (Lichtenstein and v. Haam). Indeed, we found in our clinical work that the antigen prepared from the infected monkey brain not only affords a large supply of material for diagnosis, but is actually more stable and can be more readily standardized than the antigen prepared from human cases. . . . .

SUMMARY. 1. This paper is an analysis of 154 cases of lymphogranuloma inguinale diagnosed with the Frei reaction and observed in Charity Hospital in New Orleans over a period of six months.

2. The characteristic lesion in the male is in the inguinal bubo, and in the female, in order of frequency, inflammatory rectal stricture, esthiomene and chronic elephantiasis of the vulva, and inguinal bubo.

3. Seven local strains of the causative virus of the disease were isolated from acute inguinal buboes and successfully transmitted to experimental animals.

4. An analysis of the Charity Hospital records covering rectal stricture and elephantiasis of the vulva from 1911 to 1933 indicates that lymphogranuloma inguinale, although unrecognized, has been endemic in New Orleans for many years.

5. The large number of cases observed over a short period indicates that the disease is widespread in New Orleans at the present time, particularly among the negro population.

6. The first step in the control of this venereal disease is the recognition of the condition and the comprehension of its various manifestations by the whole medical profession.

Extract from article by EMMERICH VON HAAM, M.D., and LOUIS LICHTENSTEIN, M.D., New Orleans, published in *New Orleans Medical and Surgical Journal, August, 1935, p. 92.*

A STATISTICAL STUDY OF ACUTE APPENDICITIS IN WASHINGTON HOSPITALS IN 1928 AND 1933[*]

PAUL S. PUTZKI, M.D.

Associate Professor of Surgery, George Washington University School of Medicine

The accompanying tables present briefly the statistics for cases of acute appendicitis operated upon in the hospitals of this city for the years of 1928 and 1933.

NUMBER AND TYPES OF CASES

	1928		1933	
	Cases	Per cent	Cases	Per cent
Total major operations	5,040		8,444	
Acute appendicitis	725	14	1,028	12
Appendicitis, acute unruptured	591		871	
Appendicitis, acute ruptured	129	18	158	15

MORTALITY

Total	22	3.03	40	3.8
Unruptured	3	0.5	8	0.9
Ruptured	19	14.6	32	20.1

TIME BETWEEN ONSET OF DISEASE AND OPERATION

	1928				1933			
	Unruptured	Ruptured	Mortality		Unruptured	Ruptured	Mortality	
12 hours	36	0	1	2.7%	45	0	0	0%
24 hours	94	6	2	2%	101	20	3	2.4%
2 days	63	21	2	2.3%	53	17	2	2.8%
3 days	26	6	3	9.3%	27	9	2	5.5%
4 days and over	22	16	4	10.5%	24	22	6	13%

RELATIONSHIP BETWEEN PURGATION AND PERFORATION

72 of 502 cases of non-perforative appendicitis took cathartics —14.3%

50 of 119 cases of perforated appendicitis took cathartics— 42%

50 of 122 cases taking cathartics perforated—40%

COMPARATIVE STATISTICS OF VARIOUS HOSPITALS

1928

Acute appendicitis

	CHILDREN'S	GARFIELD	GALLINGER	GEORGE WASHINGTON	PROVIDENCE	SIBLEY
Number of cases	48	150	12	41	149	325
Unruptured	36	122	5	36	114	278
Ruptured	12 25%	23 13%	7 58%	5 12%	35 23%	47 14%
Mortality						
Total	3 6.2%	4 2.7%	0	1 2.4%	7 4.7%	7 2.4%
Unruptured	1 2.7%	1 0.8%	0	0	0	1 0.3%
Ruptured	2 16.6%	3 13%	0	1 20%	7 20%	6 12.7%

1933

Acute appendicitis

	CHILDREN'S	EMERGENCY	GARFIELD	GALLINGER	GEORGE WASHINGTON	PROVIDENCE	SIBLEY
Number of cases	86	300	129	79	55	201	178
Unruptured	65	268	116	48	44	168	162
Ruptured	21 24.5%	32 10%	13 10%	31 39%	11 20%	34 17%	16 9%
Mortality							
Total	4 4.6%	10 3.3%	5 3.8%	6 7.6%	3 3.6%	9 4.5%	3 1.6%
Unruptured	0	4 1.5%	2 1.7%	0	0	1 0.6%	1 0.6%
Ruptured	4 19%	6 18.8%	3 23%	6 19%	3 18.2%	8 20%	2 12%

CONCLUSION

Decrease in the mortality rate in acute appendicitis will come only when the laity and the physician realize fully the danger of delay and purgation.

DEATHS DURING WEEK ENDED JULY 13, 1935[*]

From the Weekly Health Index Issued by the Bureau of the Census, Department of Commerce

	WEEK ENDED JULY 13, 1935	CORRESPONDING WEEK, 1934
Data from 86 large cities of the United States:		
Total deaths	7,679	7,163
Deaths per 1,000 population, annual basis	10.7	10.0
Deaths under 1 year of age	542	556
Deaths under 1 year of age per 1,000 estimated live births	50	51
Deaths per 1,000 population, annual basis, first 28 weeks of year	12.1	12.0

[*] Reprinted from Public Health Reports, United States Public Health Service, August 2, 1935.

---

[*] Read before the Annual Scientific Assembly of the Society, May 1, 1935.

MEDICAL ANNALS

of the

DISTRICT OF COLUMBIA

Editorial Office, 1718 M Street, N. W.

EDITORIAL STAFF

COURSEN B. CONKLIN, A.M., M.D., *Managing Editor*
WALLACE M. YATER, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

HEALTH INSURANCE VS. ADEQUATE MEDICAL CARE FOR ALL

Health insurance as contemplated by the present Federal Administration affects only those persons who have gainful occupations of certain kinds and with certain types of employing organizations. This plan limits whatever supposed benefits may be involved to a relatively small mass of people and to those who if frugal could probably handle the greater part, if not all, of their expenses incurred by illness. This is the very class of patients for whom such service organizations as our Medical-Dental Service Bureau are designed. Health insurance, if enacted, will help therefore only those persons who could help themselves if the medical and allied professions in individual communities established similar service organizations. Our democratic structure would then be retained and bureaucracy avoided. There is no reason why credit for medical services and even facilities (hospitalization, etc.) should not be available just as it is for other things.

What is more vital and urgently needed is a better method of rendering adequate medical care to the indigent and nearly indigent. The care of the indigent is properly a function of local government, although in many communities, as in the District of Columbia, the fundamental medical services are rendered gratis by private members of the local medical profession. Although compensation for these services, even in part, would be welcome to many of these men, especially in times like these, they consider it a privilege to be of aid to the deserving and less fortunate members of society. Adequate protection should be provided against exploitation of such services by means of an investigating bureau, such as the Central Admitting Bureau for Hospitals in Washington. Since the opening of this bureau last January the number of admissions to the Gallinger Municipal Hospital has fallen off greatly, a fact which indicates that without such control individuals undeserving of public charity are apt to receive it, either because of false representation or insufficient investigation.

The domiciliary care of indigents is the most pressing problem at present, at least in the District of Columbia, where a small number of underpaid Physicians-to-the-Poor are obviously unable to care for the estimated 25,000* indigent persons who annually require treatment at home. The result is that these patients are either inadequately treated or are hospitalized unnecessarily at Government expense. A better method of rendering this service must be devised, and the medical profession must set about developing a plan in collaboration with the Board of Public Welfare of the District of Columbia.

The problem of the domiciliary and office care of the nearly indigent is nearer solution. The recent questionnaire sent to all members of the Medical Society of the District of Columbia, because of a resolution adopted by its Executive Committee, was designed to determine which of its members are willing to treat such patients at nominal fees. These people are applying daily at the Central Admitting Bureau for Hospitals to secure permits to attend the free clinics of the hospitals affiliated with the Community Chest. They are found to be able to pay small fees for medical services. If private physicians are willing to accept these fees they will be rendering a worthy service and at the same time adding something to their income.

These things must be done. They are the only answer to the proponents of Health Insurance. Such insurance is bad for several reasons, some of which follow. In the first place, standards of medical practice would be greatly lowered and medical progress retarded. These results have followed wherever health insurance has been set up. They are the saddest of all catastrophes which could happen to a self-sacrificing profession and far more devastating than the reduction of incomes of members of the profession. In the second place, a race of parasites would be engendered and the backbone of the American people softened. Our people have always prided themselves upon their ability to take care of themselves. "Spoon-feeding" is disastrous to that spirit of self-help. In the third place, morbidity would increase, since it would pay to be sick. In the fourth place, such insurance would be unduly expensive to industry and the public, and the cause of bureaucracy would be fostered beyond all bounds of reason. Because of these and other results of health insurance it behooves every member of this Society to support to the best of his ability the work of the Economic Security Administration of the District of Columbia located in the Health Security Building at Eighth and Eye Streets. This can be done only by taking the trouble to learn at first hand what this organization is and what it is doing.

---

* Represents estimated number of indigent or semi-indigent patients discharged from local hospitals annually, condition noted as *improved* or *unimproved* (definitive treatment not received).

MEDICAL CARE OF THE SEMI-INDIGENT

Favorable Response to Recently Adopted Resolution

The members of the medical profession in Washington have again shown their willingness to serve the public with low income. Statements to the effect that there are large sections of the population who cannot get proper medical care are controverted by the expressed willingness of the physician to serve and by the demonstrated ability of the local Central Admitting Bureau to investigate, classify and apportion to dispensary and clinic the indigent, and now the semi-indigent to the physicians on the certified lists. The following resolution, formulated by the Committee on Medical Economics, was adopted by the Executive Committee, in session on the evening of July 22, 1935:

Resolved, That the Central Admitting Bureau for Hospitals be authorized and requested to refer semi-indigent patients, not entitled to dispensary care but able to pay from 50¢ to $1.00 for office or home visits, and very minimal fees for surgical, obstetrical and laboratory service to be determined by the Central Admitting Bureau, to members of the Medical Society of the District of Columbia and the Medico-Chirurgical Society in accordance with the following regulations:

1. That preference shall first be given the patient's regular physician, provided he is willing to accept the small fees contemplated;
2. Otherwise references shall be made in rotation from alphabetical lists, due consideration being given to:
   - (a) The race of the patient.
   - (b) The nature of the care necessary.
   - (c) The geographical location of the patient and physician.

The accompanying application blank has been returned to the Society's office by approximately 150 members, up to the time of going to press.

APPLICATION FOR SEMI-INDIGENT PRACTICE TO BE REFERRED FROM THE CENTRAL ADMITTING BUREAU FOR HOSPITALS

I hereby apply to have my name certified to the Central Admitting Bureau for Hospitals for inclusion on the lists of those willing to have referred to them semi-indigent patients to be treated at minimal fees to be determined by the Central Admitting Bureau.

Name..
Address..
Telephone number..
Office hours..
Do you wish to treat colored patients?..
Type of practice..
(If general practice indicate any special lines of work you wish included; otherwise list the specialty or specialties in which you desire to practice.)
(Signed)..

Physicians in specialties have in many instances specifically instructed the Bureau on their application blank that they wish only referred work from the general practitioner. This policy will be carried out. Insofar as possible names of physicians will be selected in alphabetical sequence. On the list of names being arranged for the Central Admitting Bureau are to be found physicians who normally include in their practice, patients of considerable wealth as well as those caring mostly for the wage-earner of the middle class. Of course, there is nothing new in the Doctor being willing to cut his fee to the patient's purse, but the mechanism through a distributing center whereby all may be assured proper care and impartial treatment based on their finances is an innovation which apparently has far-reaching potentialities for good.

MEMBERS OF THE BRITISH MEDICAL ASSOCIATION REACH WASHINGTON ENROUTE TO MEETING OF ASSOCIATION IN AUSTRALIA

It was the Medical Society of the District of Columbia's special privilege to welcome, on their arrival in Washington on the morning of August 6, some 55 prominent physicians and surgeons from England with their friends and families. Arriving at Union Station at 7:15 A.M., they were met by a committee and after the extending of greetings, were ushered to waiting buses for hotel and breakfast, following which trips to Arlington, Mount Vernon and public buildings filled in the day. A special trip was made to the White House. His Excellency, the British Ambassador, Sir Ronald Lindsey, received the physicians and their party at 10:45 A.M. On Wednesday, through the coöperation of the International Medical Club* a complimentary luncheon was given at the Mayflower Hotel. In the absence of Dr. William Earl Clark, president, Dr. Tomas Cajigas, vice president of the Club, in well-chosen words, welcomed the guests and introduced the speakers: Dr. H. A. Fowler, chairman, Committee on Arrangements, Dr. Dean Lewis, past president, American Medical Association, and Mr. N. Bishop-Harman, LL.D., of the British Medical Association, who made a gracious response on behalf of the visitors. We are hopeful that fate will again allow our meeting with our brother-practitioners from afar at no late date. Included in the party visiting Washington were:

Dr. E. Kaye Le Fleming, and Mrs. Fleming (Wimborne), chairman of the Council of the British Medical Association.

Mr. N. Bishop-Harman, LL.D., and Mrs. Bishop-Harman (London), Treasurer of the British Medical Association.

Dr. G. C. Anderson, and Mrs. Anderson (London), Secretary, British Medical Association.

Sir Comyne Berkeley, M.Chir., F.R.C.S., F.C.O.G., and Lady Berkeley (London), Consulting Obstetric Surgeon, Middlesex Hospital.

Sir Henry Gauvain, M.D., M.Ch., F.R.C.S., and Lady, Miss and Mr. Gauvain (Alton). Medical Superintendent of Lord Mayor Treloars' Cripples Home.

Professor E. W. Hey Groves, M.D., M.S., F.R.C.S., and Mrs. Hey Groves (Clifton, Bristol), Emeritus Professor of Surgery, Bristol University.

Sir Ewen Maclean, T.D., F.R.C.P., F.C.O.G. (Cardiff), Consulting Gynecologist, Royal Infirmary.

Sir James Purves-Stewart, K.C.M.G., C.B., M.D., F.R.C.P., and Lady Purves-Stewart (London), Consulting Physician, Westminster Hospital.

Dr. H. Guy Dain, Deputy Chairman of the representative body.

The local committee in charge of arrangements was: Drs. Harry A. Fowler, chairman, Henry C. Macatee, George B. Trible, P. S. Constantinople, William Earl Clark, Margaret M. Nicholson, William P. Herbst, Jr., and Coursen B. Conklin.

PERSONALS AND NEWS

Georgetown University announces the following promotions and appointments to their medical faculty for the coming year:

Vincent J. Dardinski, professor of anatomy and director of the department; he has been associate professor of pathology and parasitology.

Reginald A. Cutting, professor of physiology and director of the department.

John A. Simpson, assistant professor in the department of pathology and parasitology.

Philip L. Martinez, assistant professor in the department of anatomy.

George J. Brilmyer, professor of pathology and parasitology.

Harold V. Connerty, assistant professor of pathology and parasitology.

Dr. William Gerry Morgan, after years of service as Dean of Georgetown University School of Medicine, has resigned; he continues, however, as professor of gastro-enterology and Regent of the School.

Dr. Arthur C. Christie has written a book, "Economic Problems of Medicine," The MacMillan Company, publisher. Dr. Christie's long extensive contact with the subject has yielded a fund of information that should be read by all members of the profession. We can not do better than to quote from the Book Review, *Southern Medical Journal, August, 1935, page 770, as follows:*

". . . Christie has applied a well trained mind to the study of the various economic problems that affect the medical profession, including health insurance; industrial medicine; the new methods of medicine are under trial and recommended by medical organizations; and state medicine as practiced in Germany, England, France and Denmark. He discusses not only the objectionable types of medical practice, but also gives those which are recognized and approved by the American Medical Association; and finally offers a solution to the problems of medical care. Physicians, individually and collectively, should be grateful to Dr. Christie for his medical statesmanship as exemplified in his efforts to uphold high standards of ethics and medical practice. The publishers are to be commended for producing a book that should be widely read by the medical profession."

---

* This organization of physicians has as its chief function the giving of luncheons with the extending of welcome to visiting physicians from abroad.

Major Raymond O. Dart, M.C., U. S. A., is now Acting Curator of the Army Medical Museum, succeeding Major V. H. Cornell. A farewell banquet was tendered by the Washington Society of Pathologists to Major Cornell at the termination of his service as Curator of the Army Medical Museum and Secretary of the Society.

Dr. Wallace M. Yater was elected President of the Washington Society of Pathologists.

WASHINGTON OPHTHALMOLOGICAL SOCIETY

Ophthalmologists in Washington have organized the Washington Ophthalmological Society, which is to meet the first Monday in November, January, March and May at the Episcopal Eye, Ear and Throat Hospital. The present officers are:

James N. Greear, Jr., *President*
G. Victor Simpson, *Vice President*
Ernest Sheppard, *Secretary-Treasurer*

This Society has a pre-arranged program for the coming fiscal year which bespeaks much in the way of scientific interest and enthusiasm of its members. In addition to case reports there will be papers by out-of-town speakers as well as by local physicians.

January 6, 1936: "Eye Muscles." James Watson White, M.D., Assistant Professor of Ophthalmology, New York Postgraduate Medical School and Hospital.
March 2, 1936: "Treatment of Retinitis Pigmentosa." Louis S. Greene, M.D.
"Treatment of Chronic Glaucoma Simplex." William Thornwall Davis, M.D.
May 4, 1936: "Uveitis with Secondary Glaucoma Accompanying Spontaneous Absorption of the Lens. Robert H. Courtney, M.D., Associate Professor of Ophthalmology, Medical College of Virginia.

Among other speakers and essayists will be heard: Major Raymond O. Dart, Commander Ross T. McIntire, Captain Robert F. Bradish, Drs. Wallace M. Yater, William Holland Wilmer, Carden F. Warner.

All members of the Medical Society of the District of Columbia and of societies in neighboring states are cordially invited to all meetings.

MONTGOMERY COUNTY MEDICAL SOCIETY

Scientific Papers Read by Washington Physicians

Meeting: Manor Club, July 16, 1935.

The Program:

1. "Common Problems in the Physical and Mental Management of Infants and Children." P. A. McLendon, M.D.
2. "Radiological Diagnosis of Brain Conditions."
   Neurosurgical Aspects. H. H. Schoenfeld, M.D.
   Radiological Aspects. Claude Moore, M.D.

Noted in attendance were the following members of the Medical Society of the District of Columbia: Drs. C. R. L. Halley, Alec A. Preece, D. M. Bullard, Walter A. Wells, Matthew White Perry.

This Society meets on the third Tuesday of January, April, July and October. The present officers are:

W. A. Linthicum, Rockville, *President*
J. M. Bankhead, Silver Spring, *Vice President*
Jacob W. Bird,* Sandy Spring, *Secretary-Treasurer*

Delegates to the State Society:
Upton D. Nourse, Dawsonville, *Principal*
Katherine A. Chapman,* Kensington, *Alternate*

WASHINGTON EYE, EAR AND THROAT HOSPITAL

Building Taken by Government for Offices

The United States Government, through increase of its activities, has been compelled to take over buildings suitable for offices. The Walsh Mansion in Massachusetts Avenue may be cited as an example. On July 15, 1935, Dr. Oscar Wilkinson, President of the Board of Directors, removed the hospital equipment from the building at 2529 Pennsylvania Avenue, N. W. This institution was established over 20 years ago and accommodated 14 bed patients. The convenience of the building in location and the suitability of arrangements caused the Government to make an offer which was accepted.

---

* Associate Members, Medical Society of the District of Columbia.

RADIO BROADCASTS*

JUNE, JULY AND AUGUST

June 4: "Heart Disease In Children." Thomas S. Lee, M.D.

June 18: "Tuberculosis Among High School-Leaving Age Children in the District of Columbia." George C. Ruhland, M.D., Health Officer, District of Columbia.

June 25: "The General Practitioner or the Family Doctor." William T. Gill, Jr., M.D.

July 2: "Fourth of July Accidents." The Old Family Doctor.

July 9: "Summer Food." The Old Family Doctor.

July 16: "Rocky-Mountain Spotted Fever." The Old Family Doctor.

July 23: "The Girl Scout Council Investigates." Electrical transcription, courtesy of the Department of Health, State of New York.

July 30: "Grandpa Pepper Learns About Rheumatiz." Electrical transcription, courtesy of the Department of Health, State of New York.

August 6: An informal chat with representatives of the British Medical Association.

August 13: "Unconsciousness." The Old Family Doctor.

August 20: "Appendicitis." Charles S. White, M.D.

August 27: "Breast Tumors." Arch L. Riddick, M.D.

---

*Arranged by the Committee on Public Information, Dr. Herbert P. Ramsey, chairman; Dr. Arnold McNitt, subchairman.

CONTAGIOUS DISEASE REPORT

JULY, 1935

HEALTH DEPARTMENT, DISTRICT OF COLUMBIA

	Morbidity	*Mortality*
Typhoid fever	10	0
Typhus fever	0	0
Smallpox	0	0
Measles	41	0
Scarlet fever	26	0
Whooping cough	26	0
Diphtheria	68	1
Influenza	2	1
Poliomyelitis	14	4
Encephalitis-Lethargica	1	1
Epidemic Cerebrospinal Meningitis	13	8
Tuberculosis (all forms)	94	40
Syphilis	372	5
Gonorrhea	313	0
Chickenpox	18	0
Chancroid	4	1
Pellagra	2	2
Pneumonia (all forms)	37	21

REPRINTS RECEIVED

The following reprints have recently been received for which due acknowledgment is made:

"Blue Sclerotics, Fragile Bones and Deafness," Joseph Dessoff, Archives of Ophthalmology, July, 1934.

"Paratyphoid," Everett Monroe Ellison, Medical Record, July 3, 1935.

"Electric Welding. II. An Acute Fatal Pneumonia Following Electric Welding of Galvanized Iron in a Confined Space," Frank L. Williman, Journal of Industrial Hygiene, July, 1935.

The Society has recently received bound copies of reprints, 1932–1935, from the George Washington University School of Medicine.* Inclusive are 94 separate treatises by 50 members of the Faculty. Such subjects, with authors, appear as follows:

"The Temporary Formation of the Azlactone Ring in the Racemization of Acyl Derivatives of Amino Acids with Acetic Anhydride," Vincent du Vigneaud, and C. E. Meyer, J. Biol. Chem., 1932, **99**, 143.

"Relation of Amino Acid Nitrogen to Wassermann Reaction," G. Brewer, Am. J. Syph., 1933, **17**, 221.

"Further Studies on Blood Chemistry of Hens Bearing Rous Sarcoma No. 1," H. M. Dyer, and J. H. Roe, Am. J. Cancer, 1933, **18**, 888.

"Experimental Observations on the St. Louis Epidemic of Encephalitis," E. B. McKinley, and E. Verder, Proc. Soc. Exper. Biol. & Med., 1933, **31**, 297.

"Reaction of the Oviduct of the Skate to Certain Autonomic Poisons," G. B. Roth, J. Pharmacol. & Exper. Therap., 1933, **49**, 387.

"Relative Depressant Effects of Certain Barbiturates on Heart of Elasmobranchs," G. B. Roth, Proc. Soc. Exper. Biol. & Med., 1933, **30**, 563.

"Double Primary Malignant Tumors of the Colon," C. S. White, Ann. Surg., 1933, **98**, 186.

"Circulatory Responses to Acetylcholine in Normal Dogs and in Dogs with Aortic Regurgitation," I. Brotman, G. Brewer, and W. F. Hamilton, J. Pharmacol. & Exper. Therap., 1934, **50**, 354.

"External Hysterographic Studies of Effect of Certain Analgesics and Anesthetics upon Parturient Human Uterus," S. M. Dodek, Anesth. & Analg., 1934, **13**, 8.

"Study of Vaccination in 500 New-born Infants," H. H. Donnally and Margaret M. Nicholson, J. A. M. A., 1934, **103**, 1269.

"Weight of Endocrine Glands; Biometrical Studies in Psychiatry," W. Freeman, Human Biol., 1934, **6**, 489.

"Use of Paraldehyde in Obtaining Obstetric Analgesia and Amnesia," H. F. Kane, and G. B. Roth, Am. J. Obst. & Gynec., 1935, **29**, 366.

"A Colorimetric Method for the Determination of Fructose in Blood and Urine," J. H. Roe, J. Biol. Chem., 1934, **107**, 15.

"Enlarging Responsibilities for the Physician," W. A. White, J. Nerv. & Ment. Dis., 1934, **79**, 497.

---

* Through donation by the Department of Psychiatry.

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV SEPTEMBER, 1935 NUMBER 9

MENINGITIS IN CHILDREN*†

A REVIEW OF 331 CASES

JANVIER W. LINDSAY, M.D., E. CLARENCE RICE, M.D. AND MAURICE A. SELINGER, M.D.
Washington

During the 10-year period from 1924 to 1933, inclusive, 331 patients were treated in the Children's Hospital for meningitis. The following represents the data obtained from the study of their hospital records.

TYPES OF MENINGITIS

The various types of meningitis treated are tabulated in Table 1. Tuberculous meningitis constituted 34.4 per cent of the cases. The excess of tuberculous meningitis over other forms is striking and indicates the seriousness of an early tuberculous infection during childhood.

Influenzal meningitis was as common in this series as meningococcic meningitis, a fact that is at variance with the statistics from comparable sources in other cities as noted in Table 2. The reason for this difference is not apparent, except that the District of Columbia seems to maintain a high incidence of sinus and respiratory infections.

Those cases included as of undetermined origin are probably largely tuberculous and meningococcic meningitis. None of these patients had a necropsy, and no organisms were found in smears or cultures of the spinal fluid. Other examinations, while often suggestive, were not sufficiently conclusive to make a diagnosis.

Inasmuch as the cases of syphilitic meningitis and of Friedlander's bacillus meningitis were so few, they will not be discussed further, since no satisfactory conclusions can be drawn.

AGE INCIDENCE

Excluding staphylococcic meningitis, that type due to the hemoglobinophilic group of organisms similar to B. influenzae affect the youngest age group of children, the average age being 1.78 years (Table 1). The majority of those having tuberculous and pneumococcic meningitis are but little older. Meningococcic and streptococcic meningitis usually occur at a later age, 5.73 and 5.76 years, respectively. These facts account for the paucity of symptoms in tuberculous, influenzal and pneumococcic meningitis with their not infrequent recognition. Doubtless the mortality figures are affected adversely by this.

Meningitis may occur at a very early age. We have previously reported all cases on record of infants under 2 weeks of age having meningitis. In the discussion, McLendon reported a case of meningococcic meningitis with recovery in an 8-day old infant. This patient is included in this series. The youngest patient with tuberculous meningitis in this series was 3 months old, but we have since diagnosed at necropsy this type of meningitis in a 2-day premature infant. The youngest patients in the various disease groups were as follows: Influenzal meningitis, 4 months; streptococcic meningitis, 10 days; pneumococcic meningitis, 6 weeks and staphylococcic meningitis, 2 weeks.

---

* From the Children's Hospital, Washington, D. C.

† Read before the Annual Scientific Assembly of the Society, May 2, 1935.

Sex Incidence

Meningitis is more prevalent among males than females (Table 1).

TABLE 1

Analysis of 331 Cases of Meningitis

TYPE OF MENINGITIS	NUMBER OF CASES	PER CENT	AVERAGE AGE	SEX		RACE	
				Male	Female	White	Colored
			years				
Tuberculous	114	34.4	2.10	63	51	34	80
Meningococcic	58	17.5	5.73	29	29	36	22
Influenzal	58	17.5	1.78	38	20	35	23
Pneumococcic	35	10.56	2.34	20	15	19	16
Streptococcic:							
S. hemolyticus 22							
S. anhemolyticus 3							
S. viridans 5							
Unclassified 5							
Staphylococcic	4	1.2	1.26	2	2	2	2
Syphilitic	2	0.6	0.33	2	0	2	0
Friedlander's Bacillus	1	0.3		1	0	0	1
Undetermined	24	7.25		15	9	16	8

TABLE 2

Distribution of Meningitis Cases in Various Places

TYPE OF MENINGITIS	(NEAL)* NEW YORK CITY AGED 3 MO. 10 YRS. (973)		HARRIET LANE HOME** JOHNS HOPKINS HOSPITAL BALTIMORE, MD. AGED 12 YRS. OR UNDER (919)		CHILDREN'S HOSPITAL† WASHINGTON, D. C. AGED 2 WKS. TO 12 YRS. (331)		INFANT'S AND CHILDREN'S HOSPITALS‡ BOSTON, MASS. AGED 12 YRS. OR UNDER (705)		CHILDREN'S HOSPITAL§ DENVER, COLORADO (153)	
	Number of cases	Per cent	Number of cases	Per cent	Number of cases	Per cent	Number of cases	Per cent	Number of cases	Per cent
Tuberculous	471	48.4	398	43.3	114	34.4	290	41.1	34	22.2
Meningococcic	382	39.3	274	29.8	58	17.5	160	22.7	48	31.4
Influenzal	33	3.3	67	7.3	58	17.5	78	11.1	20	12.9
Pneumococcic	43	4.4	115	12.5	35	10.56	69	9.8	14	9.15
Streptococcic	37	3.8	39	4.25	35	10.56	69	9.8	25	16.3
Staphylococcic	7	0.7	19	2.07	4	1.2	15	2.1	3	1.96
Colon Bacillus Group	—	—	—	—	—	—	9	1.3	—	—
Luetic	—	—	6	0.65	2	0.6	—	—	1	0.6
Friedlander's Bacillus	—	—	1	0.19	1	0.3	—	—	—	—
Undetermined	—	—	—	—	24	7.25	15	2.1	8	5.2

* Neal, Josephine B.: Practice of Medicine, Edited by Frederick Tice, Hagerstown, Md., Prior Company, **10,** 255.

** From 1913 to March, 1935.

† From 1924 to 1933, inclusive.

‡ Fothergill, L. D., and Sweet, L. K.: Meningitis in Infants and Children, with Special Reference to Bacteriological Diagnosis. J. Pediat., 1933, **2,** 697.

§ 1929 to 1935.

Race Incidence

At the Children's Hospital approximately double the number of white as colored patients are admitted. The susceptibility of the colored patient to tuberculosis is apparent when noting that approximately 70 per cent of those contracting this disease were members of this race (Table 1). Colored children also appear to acquire pneumococcic meningitis more readily than do white children.

SEASONAL INCIDENCE

Meningeal infections in the District of Columbia occur most commonly from the months of November to July (Table 3). Tuberculous meningitis reaches its peak in the early summer, manifesting itself as the result of cumulative respiratory injuries which serve to activate a previously existing tuberculosis. Meningococcic meningitis usually reaches its maximum during March. The other meningitides closely follow the season of the various respiratory infections as seen in children.

TABLE 3

SEASONAL INCIDENCE

MONTH	TUBERCULOUS	MENINGOCOCCIC	INFLUENZAL	PNEUMOCOCCIC	STREPTOCOCCIC	TOTAL
January	9	2	16	8	3	38
February	10	9	3	3	4	29
March	8	17	3	3	8	39
April	8	6	7	5	3	29
May	9	5	2	5	6	27
June	15	2	1	0	5	23
July	9	5	4	3	1	22
August	7	2	1	2	2	14
September	10	2	2	0	1	15
October	7	1	2	2	1	13
November	6	3	10	1	1	21
December	10	4	7	3	1	25

ETIOLOGICAL FACTORS

In tuberculous meningitis there has always been a definite contact with infected persons or contaminated materials. In this series (Table 4) history of such contact was obtained, however, in but 15.8 per cent. More careful history taking could in all probability achieve a higher figure. The influence of recent contagious disease or respiratory infection is shown. A most important factor is malnutrition. The number of cases of rickets is certainly in excess of the 5 cases given, and these doubtless represent florid types. It has been our observation that most of the patients having this disease show evidence of rickets and other forms of feeding deficiencies.

With meningococcic meningitis there appears to be no other factor than contact with a carrier of the meningococcus. A history of known contact with a person who had epidemic meningitis was obtained in 15.5 per cent (Table 5). Disease of the ear with involvement of neighboring structures has long been recognized as the principal etiological factor in streptococcic meningitis (Table 6).

TABLE 4

TUBERCULOUS MENINGITIS (114)

Principal Symptoms and Findings

Average Age 2.1 Years

	NUMBER OF CASES
Preceded by:	
Known contact with tuberculous patient	18
Rickets	5
Cervical abscess	1
Scarlet fever	1
Measles	1
Chickenpox	1
Pertussis	4
Pneumonia	1
Associated with or Complicating the Meningitis:	
Otitis media	7
Mastoiditis	1
Tuberculous pericarditis	2
Tuberculosis involving orbit	2
Influenzal meningitis	2
Cerebral hemorrhage	1
Spinal block with dilatation of lateral ventricles	3
Caseating tuberculosis of mediastinal and bronchial lymph nodes, generalized miliary tuberculosis or chronic tuberculosis of lungs, spleen and other organs	114
	PER CENT
Symptoms:	
Vomiting	52.1
Rhinitis	25.6
Physicdl Signs:	
Stiff neck	48.9
Drowsiness	40.4
Enlarged cervical lymph nodes	30.5
Increased or absent knee jerks	29.75
Positive Kernig	28.7
Râles	26.6
Divergent squint	26.6
Clonic movements	22.4

The influence of respiratory disease is quite apparent in studying pneumococcic and influenzal meningitis (Tables 7 and 8). The former, as might be expected, is not infrequently preceded by pneumonia. While there is often a history of pneumonia having been present before influenzal meningitis appears, involvement of the middle ear may be a direct factor in causing the meningitis. Mastoiditis was not recognized in connection with influenzal meningitis. While the cases of staphylococcic meningitis were very few the influence of skin infections and trauma involving the skin in the young and debilitated is apparent (Table 9).

TABLE 5

Meningococcic Meningitis (58)

Principal Symptoms and Findings

Average Age 5.73 Years

	NUMBER OF CASES
Preceded by:	
Congenital syphilis	2
Known contact with a known case of epidemic meningitis	9
Mastoiditis	1
Complicated by:	
Otitis media	3
Pneumonia	6
Lung abscess	1
Cardiac infarction	1
Myocarditis	1
Panophthalmitis	1
Nephritis	2
Bursitis or arthritis	2
Hemiplegia	1
Spinal block	5
Dilatation lateral ventricles	3
	PER CENT
Symptoms:	
Vomiting	55.3
Headache	23.7
Physical Signs:	
Positive Kernig	47.4
Stiff neck	42.1
Convulsions	26.3
Knee jerks increased or absent	21.0
Rash	13.8

Symptoms and Physical Signs

In compiling these data under the above heading, no symptom or sign occurring less frequently than in 20 per cent of the cases is listed, with the exception of the rash in meningococcic meningitis.

Vomiting is the most common symptom, having been present in nearly half of the patients. Diarrhea occurred only in tuberculous meningitis. Headache could only be elicited in the older children, hence its appearing as a prominent symptom in meningococcic and streptococcic meningitis. Rhinitis was noted most frequently in tuberculous meningitis (Tables 4 to 9).

TABLE 6

Streptococcic Meningitis (35)

Principal Symptoms and Findings

Average Age 5.76 Years

	NUMBER OF CASES
Preceded by or Associated with:	
Chickenpox	1
Measles	2
Pulmonary tuberculosis	2
Erysipelas	1
Septic sore throat	1
Otitis media	11
Mastoiditis	8
Thrombosis lateral sinus	1
Brain abscess	4
Metastatic abscesses	2
Bronchitis	1
Pneumonia	5
Nephritis	1
Complication:	
Spinal block	1
	PER CENT
Symptoms:	
Vomiting	44.4
Headache	33.3
Physical Signs:	
Stiff neck	55.6
Positive Kernig	38.9
Increased or absent knee jerks	22.2
Bulging fontanelle	22.2
Enlarged cervical lymph nodes	22.2

In view of the fact that the physical findings were recorded by many observers it is natural for one group to stress certain neurological signs oftener than another. This may account for the absence of certain well known findings in the list given in Tables 4 to 9. The presence of a stiff neck was most consistently found in all types of meningitis. A positive Kernig sign, while often present in the cases of meningococcic and streptococcic meningitis, was not especially common in the other types. Drowsiness is particularly characteristic of tuberculous meningitis. Especially noteworthy in this disease and peculiar to it when associated with drowsiness are pulmonary râles, divergent squint and clonic movements. Enlarged cervical lymph nodes are common to both tuberculous and streptococcic meningitis. While the rash in epidemic meningitis is quite characteristic, its occurrence in only 13.8 per cent of these patients was not particularly helpful. Various other types of rashes occurred in approximately 6 per cent of the patients having tuberculous, streptococcic and influenzal meningitis.

TABLE 7

Pneumococcic Meningitis (35)

Principal Symptoms and Signs

Average Age 2.34 Years

	NUMBER OF CASES
Preceded by:	
Congenital lues	1
Pertussis	1
Influenza	1
Otitis media	3
Pneumonia	7
Pleurisy	1
Pericarditis	1
Endocarditis and septicemia	1
Fracture base of skull	1
Neuroblastoma (adrenal)	1
Complicated by:	
Spinal block	1
Influenzal meningitis	1
	PER CENT
Symptoms:	
Vomiting	37.9
Physical Signs:	
Stiff neck	37.9
Convulsions	37.9
Knee jerks increased or absent	31.0
Clonic movements	20.7

The average temperature readings and the type of the temperature curve are given in Table 10.

Laboratory and X-ray Aids in Diagnosis

Although meningitis can usually be diagnosed without the aid of the clinical laboratory, making a definite diagnosis as to type requires various laboratory and roentgen examinations.

The summary of the various findings given in Table 11 represents the average of the initial examinations made on the various patients.

TABLE 8

Influenzal Meningitis (58)

Principal Symptoms and Findings

Average Age 1.78 Years

	NUMBER OF CASES
Preceded by:	
Mumps	1
Pertussis	1
Rickets	2
Otitis media	11
Bronchitis	2
Pneumonia	14
Pleurisy	2
Empyema	2
Abscess lung	1
Pericarditis	1
Osteomyelitis	2
Complications:	
Acidosis	1
Pharyngeal paralysis	2
Temporary blindness	1
Spinal block	3
Dilatation lateral ventricles	3
	PER CENT
Symptoms:	
Vomiting	40.6
Rhinitis	24.3
Cough	24.3
Physical Signs:	
Stiff neck	37.8
Increased or absent knee jerks	29.7
Irritability	27.0
Divergent squint	23.3

Enumeration of the leukocytes is rarely diagnostic, as it will be noted that there is little difference in the average counts in the various types of meningitis. A leukopenia when present is highly suggestive of either tuberculous or influenzal meningitis. Blood culture is not infrequently positive in the various types of meningitis with the exception of that due to the tubercle bacillus.

Examination of the spinal fluid usually enables one to determine the infecting organism. Ordinarily there is little difficulty in finding the bacteria responsible for the meningitis in the influenzal, pneumococcal and streptococcal types. The meningococcus is usually found in films made from the centrifuged spinal fluid and ordinarily in culture when special media is used, although a few cases occur in which the organism is not found in either smear or culture. Very often the coccus will disappear from the fluid after the first injection of antimeningococcus serum.

TABLE 9

Staphylococcic Meningitis (4)

Principal Symptoms and Findings
Average Age 1.2 Years

	NUMBER OF CASES
Preceded by:	
Measles	1
Furunculosis	1
Ulceration meningocele	1
Eczema and head injury	1
	PER CENT
Symptoms:	
Vomiting	50.0
Physical Findings:	
Stiff neck	50.0
Irritability	25.0
Convulsions	25.0
Pupils dilated	25.0
Positive Kernig	25.0
Reflexes absent in one leg, present in the other	25.0
Enlarged cervical lymph nodes	25.0

TABLE 10

Average Temperatures

TYPE OF MENINGITIS	DEGREES F.	TYPE OF TEMPERATURE CURVE
Pneumococcic	104.1	Continuous
Streptococcic	103.3	Continuous
Influenzal	103.0	Continuous
Meningococcic	102.1	Irregular
Tuberculous	100.7	Variable

The spinal fluid in tuberculous meningitis is most distinctive, with its low cell count, excess of lymphocytes, coagulum and low sugar content. The latter finding serves to differentiate this disease from acute lymphocytic meningitis, which has a normal spinal fluid sugar. The tubercle bacillus can ordinarily be found in the fluid of practically all patients having this type of meningitis if the fibrin web is stained and examined. One's success in finding the organism is largely dependent on the amount of time at his disposal for the search. The Levinson test has been found to be quite reliable as a diagnostic aid in our experience. The more chronic types of meningitis are most likely to give spinal fluids which are bloody or xanthochromic, tuberculous meningitis being most prone to do this because of tuberculous involvement of the walls of the blood vessels of the brain and meninges.

The influenza bacillus is the most common organism associated as a co-infecting or secondary invader, although in moribund patients the streptococcus is sometimes found in the spinal fluid.

Evidence of kidney involvement or irritation is often found in tuberculous, meningococcic and influenzal meningitis, most commonly in the first two. Pus and blood in connection with tuberculous meningitis usually indicate a tuberculous infection of the kidney.

When tuberculous meningitis is suspected and tubercle bacilli have not been found in the spinal fluid, the roentgen examination of the lungs will often reveal miliary tuberculosis or tracheobronchial lymph node tuberculosis, with or without lung involvement. X-ray findings are more often positive than the intradermal tuberculin test, which in this series was positive in 75.6 per cent. Rather frequently a positive tuberculin test in a child of 1 or 2 years, having vague neurological signs and slight fever, gives the clue for the examination of the spinal fluid and an early diagnosis of tuberculous meningitis. It is believed that in the hands of the specially trained worker using the newer tuberculins a higher percentage of positives will be obtained.

DIFFERENTIAL DIAGNOSIS

The diagnosis of meningitis in young children is not easy, due to lack of neurological signs in the incompletely developed nervous systems.

Meningococcic meningitis seems to offer the greatest difficulty in diagnosis, as shown in Table 12. Various incorrect diagnoses were made, such as purpura hemorrhagica due to the rash sometimes noted in epidemic meningitis, and continued vomiting sometimes misleads one into a diagnosis of some digestive disturbance.

Recognizable signs of meningitis were frequently absent until near death in influenzal meningitis, and typhoid fever was incorrectly diagnosed once due to the stupor and leukopenia.

Tuberculous meningitis is most often confused with epidemic encephalitis, tetany or intestinal influenza.

In the newborn infant meningitis is rarely thought of and the disability is put down as a feeding problem, birth hemorrhage or tetany. Due to clonic convulsions and other motor irritative symptoms tetany is rather frequently diagnosed in children under 1 year of age when the actual cause is meningitis.

Pneumococcic and streptococcic meningitis appear to offer fewer difficulties in diagnosis than the other forms, the latter because the condition may be anticipated when an otitis media or mastoiditis exists.

TABLE 11

LABORATORY DATA

	TUBERCULOUS	MENINGOCOCCI	INFLUENZAL	PNEUMOCOCCIC	STREPTOCOCCIC
Blood:					
Average W. B. C. Count	15,300	18,070	18,200	20,570	19,850
Highest	37,000	41,000	35,000	32,000	30,000
Lowest	4,400	7,300	4,900	10,000	11,150
Polys. in excess (per cent)	93.6	86.4	92.3	100.0	90.0
Spinal fluid:					
Xanthochromic	5	4	2	2	1
Bloody	4				
Average W. B. C. Count	204	4,400	3,950	2,330	5,480
Polys. in excess (per cent)	30.2	100.0	93.5	100.0	90.9
Other bacteria found:					
B. influenzae	2	1		1	
Pneumococcus		1			
M. catarrhalis			1		
Gram negative bacillus					1
Urine:					
Albumin	Often +	Often +	Often +		
Pus	Often +	Often +			
Blood	Often +				
Casts		Often +	Often +		
Tuberculin (Per cent):					
Positive	75.6				
Negative	23.2				
Doubtful	1.2				
X-ray:					
Chest	Usually gives positive evidence of tuberculosis				

The recommendation of experienced clinicians to do a spinal puncture when the diagnosis of meningitis is in doubt and not wait for definite symptoms and findings is worthy of consideration by all. An early diagnosis with prompt treatment is often life-saving, whereas delay may result in the patient's death.

DURATION

Meningococcic and tuberculous meningitis may be classed as chronic types; streptococcic, influenzal and pneumococcic as acute. Occasionally fulminating cases of epidemic meningitis succumb within 24 hours after the onset. Table 13 gives the average duration of the principal types of meningitis.

TABLE 12

DATA RELATING TO DIAGNOSIS AND ULTIMATE OUTCOME

Meningococcic Meningitis

1. Meningitis not diagnosed on admission, thought to be purpura hemorrhagica. Recovered.
2. Meningitis undiagnosed during first 3 days in hospital. Thought to have a blood dyscrasia due to purpura. Patient aged 7 weeks. Recovered.
3. Hospitalized 3 days before meningitis was suspected. Died.
4. Meningitis unrecognized for 6 days after onset. Died.
5. Meningitis unrecognized for 6 days after onset by 2 physicians. Aged 6 months. Died.
6. Original diagnosis by 2 physicians—indigestion. Died.
7. Treated for pneumonia. Meningitis not recognized until autopsied.

8a. Meningitis not recognized for 8 days after being hospitalized. Died.

8b. Brother developed meningitis. Recovered.

9. Two brothers had meningitis. The one who became ill first died, an immediate diagnosis not being made, the other recovered, presumably due to prompt diagnosis and treatment.
10. Three children in same family, aged 20 months, 4 and 6 years, developed meningitis.
    (a) Youngest died within 24 hours of onset, influenzal meningitis being a complication.
    (b) Others recovered, no organisms being obtained from spinal fluid of one. Both developed measles during the meningitis.

PROGNOSIS

In general we may state that the earlier a diagnosis of meningitis is made and treatment begun the more favorable the outcome is likely to be. Certain patients with meningitis, meningococcic particularly, may have such an overwhelming toxemia as to succumb within 20 hours after the known onset. Examination of the 331 case records in this series would indicate that the diagnosis of purulent meningitis is not often made until the second or third day of the illness. This delay is just as often due to failure to call a physician at the onset as it is to the physician's inability to make the correct initial diagnosis.

At the present time the average mortality percentage for hospital cases having epidemic meningitis in this country is about 40 per cent (Table 14). Ferry's meningococcus antitoxin, based on Hoyne's experience, gives promise of reducing the mortality rate.

Based on results in the past the expectation of a cure in the other types of meningitis, luetic excepted, has been almost out of the question, the mortality percentage being close to 100 per cent. Since Felton's antipneumococcus serum has become available there is reason to believe that the mortality rate in pneumococcic meningitis may be lowered when the infection is due to pneumococci of types I, II, VII, XIV and XVIII. Based on our experience, children are more likely to die of pneumococcic meningitis than adults.

TABLE 13

AVERAGE DURATION OF ILLNESS

TYPE OF MENINGITIS	DAYS
Meningococcic	21.4
Tuberculous	17.1
Streptococcic	11.7
Influenzal	8.84
Pneumococcic	5.48

We believe that if a potent anti-influenzal serum were used routinely intraspinally along with fresh human serum in all cases of influenzal meningitis fewer deaths would occur. Examination of Table 1 shows a prevalence of this type of meningitis which is not expected by most physicians. When this is generally appreciated and more specific means of therapy are used better results may be expected.

Streptococcic meningitis promises to always offer a very poor prognosis inasmuch as it is usually a complication of some otitic infection. Any hope of curing the meningitis is usually quite dependent upon the otologist successfully combatting a preëxisting mastoiditis, sinus thrombosis, etc. Often the patient is so critically ill as to make operative interference impossible.

TABLE 14

Meningococcic Meningitis

Cases and Deaths, 1924 to 1933, inclusive

	CHILDREN'S HOSPITAL*			GALLINGER MUNICIPAL HOSPITAL*			DISTRICT OF COLUMBIA			UNITED STATES PUBLIC HEALTH SERVICE REPORTS		
	Cases	Deaths	Mortality percentage	Cases	Deaths	Mortality percentage	Cases	Deaths	Mortality percentage	Cases	Deaths	Mortality percentage
1924	0	0	0.00	—	—	—	2	0	0.00	1,319	556	42.15
1925	2	1	50.00	—	—	—	4	3	75.00	1,422	606	42.58
1926	3	1	33.33	—	—	—	6	2	33.33	1,697	792	46.66
1927	2	2	100.00	—	—	—	4	3	75.00	2,164	946	43.71
1928	5	1	20.00	3	2	66.66	8	5	62.66	3,908	1,746	44.67
1929	10	5	50.00	7	1	14.28	20	14	70.00	5,926	2,775	46.82
1930	7	2	28.57	9	2	22.22	24	10	41.66	5,190	2,374	45.70
1931	9	3	33.333	29	14	48.27	58	28	48.27	3,859	1,843	47.76
1932	13	8	61.54	16	10	62.50	32	13	40.62	2,231	1,013	41.54
1933	7	1	14.28	12	5	41.66	22	11	50.00	2,033	854	42.49

* Washington, D. C.

Few physicians have ever seen a recovery follow tuberculous meningitis. In our experience death has always occurred after a rather prolonged illness.

Mortality statistics for the various types of meningitis in this series are given in Table 15.

THERAPY

In Table 16 we have outlined the procedures which we have found applicable or worthy of trial in the treatment of the commoner types of meningitis. We must stress the importance of early diagnosis and treatment as of the greatest value therapeutically.

While there is considerable controversy as to the advisability of initial intravenous serum therapy in meningococcic meningitis we are of the opinion that this procedure is of value and should be carried out routinely. The use of large initial doses of serum, 100 to 200 cubic centimeters, as suggested by Banks, is worthy of trial. The giving of ample amounts of fluid by various routes to insure adequate drainage of cerebrospinal fluid is essential. Administration of serum intrathecally once daily seems to be adequate. In the uncomplicated case we see no reason to give serum into the cisterna magna and prefer the spinal route unless a block occurs.

TABLE 15

Mortality Rate

TYPE OF MENINGITIS	NUMBER OF CASES	DIED	IMPROVED OR RECOVERED	RESULT UNKNOWN	MORTALITY PERCENTAGE
Meningococcic	58	23	35	0	39.6
Undetermined	24	18	4	3	90.9*
Influenzal	58	56	2†	0	96.5
Streptococcic	35	34	1	0	97.2
Tuberculous	114	114	0	0	100.0
Pneumococcic	35	35	0	0	100.0
Staphylococcic	4	4	0	0	100.0
Friedlander's Bacillus	1	1	0	0	100.0
Syphilitic	2	0	1	1	

* Based on known results in 22 cases.

† Necropsy revealed meningitis in one case to have cleared up, death due to pneumonia.

Elevation of the foot of the bed for 2 hours following injection may be of value in distributing the serum. The suggestion of Banks, based on reports from Roumania, for the administration of serum into the ventricles of children under 1 year merits consideration. The new antitoxin of Ferry as stated before, gives promise of reducing the number of deaths in this type of meningitis. Its use is indicated in alternate cases, the antimeningococcic serum of Flexner being used in the controls. If Ferry's serum is a true antitoxin, it would seem that a massive initial dose intravenously and a few relatively large doses intraspinally might be sufficient.

TABLE 16

THERAPY—MENINGITIS

	MENINGOCOCCIC	PNEUMOCOCCIC	STREPTOCOCCIC	INFLUENZAL	TUBERCULOUS
Serum	Antimeningococcic Serum. Meningococcus Antitoxin. To be given intravenously and intraspinally, the first day, intraspinally thereafter	Felton's Serum for Types I, II and VII. To be given intravenously and intraspinally the first day, intraspinally thereafter. Serum from normal donors	Scarlet Fever antitoxin for S. hemolyticus infection. Polyvalent antistreptococcic serum. Serum from normal donors. All intraspinally	Anti-influenzal serum. Fresh serum from normal donors. Both intraspinally	None
Fluids by mouth	In large amounts	In large amounts	In large amounts	In large amounts	In large amounts
Fluids parenterally	If not taken adequately by mouth	If not taken adequately by mouth	If not taken adequately by mouth	If not taken adequately by mouth	If not taken adequately by mouth
Transfusions	Often desirable	Should be given frequently	Should be given frequently	Should be given frequently	Prolong life
Spinal drainage	1 to 3 times daily	1 to 3 times daily	1 to 3 times daily	1 to 3 times daily	To relieve pressure
Cisternal or ventricular punctures	When blockage of fluid occurs	When blockage of fluid occurs	When blockage of fluid occurs	When blockage of fluid occurs	
Other procedures of indicated or possible value	Autogenous vaccine intraspinally in chronic form Introduction of air intraspinally in chronic form	Permanent drainage Ethyl-hydrocuperein hydrochloride intraspinally Solution of bile salts intraspinally	Permanent drainage Removal or drainage of foci adjacent to meninges	Permanent drainage	Introduction of oxygen intraspinally Introduction intraspinally of artificial spinal fluid treated with ultra-violet rays Irradiation of skull and vertebrae

Early diagnosis and prompt treatment are essential.

Just how long antimeningococcic serum therapy should be continued is a difficult question to answer. There is no doubt that the continued injection of horse serum into the meninges may set up sufficient irritation to do as much or more harm than its antibacterial qualities possess for good. If after 10 days to 2 weeks of treatment with different lots of serum from various biological laboratories the cerebrospinal fluid still contains meningococci or the fluid remains turbid and perhaps xanthochromic, it would seem best to terminate serum therapy, depending on other measures such as transfusions, autogenous vaccines, etc.

Spinal drainage should be done every 8 to 12 hours during the early part of the illness, the frequency being reduced as indicated. A word of caution is given concerning the preparation of the skin for spinal puncture. The continued use of tincture of iodine on the skin of a child is very likely to set up an irritation which with the frequent puncture wounds of the skin may give rise to severe and extensive skin infections. The use of alcohol with frequent change of location of the site of puncture is suggested.

By means of the rapid typing of pneumococci it is now possible to start specific treatment of the meningitis within an hour after the spinal puncture has been done. A large dose of serum of the specific pneumococcus type should be given intravenously, followed by daily intraspinal injection of serum. Other procedures which may merit trial are indicated in Table 16. In view of the value of spinal drainage in meningitis we feel that the institution of permanent drainage is worthy of more general use in pneumococcic, influenzal and staphylococcic meningitis.

We have indicated before that the successful treatment of streptococcic meningitis is largely dependent on the otologist being able to locate and remove the source of infection responsible for the meningitis. Routine cultures of discharges from the ears, nose and mastoid wounds should be made so as to determine the probable infecting organism and thus be able to institute serum therapy at once, should meningitis develop.

In view of the prevalence of influenzal meningitis a more general trial of anti-influenzal serum is indicated (Ward and Fothergill; Fothergill). Several biological laboratories are producing such a serum commercially. Injection of complement in the form of fresh human serum appears to be desirable.

There is a well founded impression among those treating tuberculous meningitis that the condition is hopeless and nothing can be done except to keep the patient as comfortable as possible and relieve intracranial pressure. In view of the near hopelessness of these patients it would seem that procedures which might be counted as somewhat radical should be countenanced. The fact that a patient having a tuberculoma of the brain recovered following an exploratory operation brings up the possibility of injecting oxygen intraspinally or of using irradiated fluid intraspinally. Roentgen therapy over the meninges has been used and this method may have some merit. None of the procedures mentioned should be used in a moribund patient and should be reserved for such patients whose meningitis is recognized early.

PATHOLOGY

The pathology of the various types of meningitis is so well known as not to need extensive reviewing.

Influenzal and pneumococcic meningitis have much in common, there usually being a thick exudate of purulent material involving the pi-arachnoid. This may completely obliterate the underlying brain and is usually more generalized than in the other forms, being especially prominent over the anterior portion of the cerebrum. Although there is an excessive amount of fibrin produced in the exudate, organization of the exudate with adhesions is not as common, due to the short duration of the illness, as in epidemic or tuberculous meningitis. Difficulty in obtaining spinal fluid is more often due to the thickness of the exudate rather than a block due to adhesions. Evidences of a preceding pneumonia or otitis media are often found at necropsy.

Streptococcic meningitis is usually characterized by a more localized and thinner exudate than those previously described. While localization may be noted in other types of purulent meningitis when of otitic origin, this tendency is more likely to be observed in the streptococcic type than in those just described. In such cases the exudate is most prominent adjacent to the ear or mastoid cells involved. The frequency of brain abscess emphasizes this fact. In streptococcic as well as tuberculous meningitis there is a definite tendency to involve the blood vessels, an endarteritis being produced. Pneumonia is not as frequently found as in influenzal and pneumococcic meningitis, but embolic phenomena are more often observed.

Meningococcic meningitis does not ordinarily give rise to as extensive or marked purulent exudate in the piarachnoid as the pneumococcic and influenzal types. Varying quantities of grayish purulent material are found postmortem in the sulci and along the blood vessels. Increased amounts are usually noted over the cerebellum and cover much of the base of the brain with inclusion of the cranial nerves. Due to the chronicity of the disease and the presence of considerable fibrin it is not unusual to find fibrinous adhesions involving the meninges, sometimes causing a blockage to the passage of fluid at the foramen magnum or adhesions at or near the foramina of Magendie and Luschka preventing the normal flow from the ventricles with hydrocephalus resulting. In such cases involvement of the ventricles takes place. Such involvement is not uncommon without the presence of a block, the ependema and adjacent structures showing evidence of inflammatory reaction. Elsewhere evidence of embolic phenomena is sometimes noted and bronchopneumonia is occasionally a complication.

Tuberculous meningitis in this series was always found to be secondary to a tuberculous infection in other parts of the body. The most frequent pathological combinations were either caseating mediastinal and peribronchial lymph nodes with general and miliary tuberculosis or tuberculous bronchopneumonia and generalized miliary tuberculosis. It is this extensive involvement which makes curative therapy seem almost hopeless.

The meningeal involvement gives an entirely different picture than that noted in the other types of meningitis described. While the piarachnoid is congested and the superficial vessels of the brain are distended with blood, the collections of purulent material described previously are not found in this type of meningitis. Tubercles are scattered along the blood vessels and tend to accumulate about the base of the brain with rather large collections of fibrin. This usually extends forward to the optic chiasm and behind to the posterior portion of the cerebellum, the cranial nerves frequently being involved. It is this rather characteristic involvement of the basilar portions of the brain which cause the various oculomotor changes. The tubercles are often so small as to be seen with difficulty. The ventricles are usually affected, and the choroid plexus and ependema show tubercles. Perivascular involvement of the blood vessels with destruction of the wall is found when the tissue is examined microscopically. This explains the presence of bloody or xanthochromic fluid. Occasionally massive hemorrhages filling the ventricles have been observed. Tuberculomata were not found in this series.

CONCLUSIONS

1. Tuberculous meningitis is the commonest form of meningitis in children, having a high incidence among members of the colored race. Next in order of frequency are meningococcic, influenzal, pneumococcic, streptococcic and staphylococcic meningitis. In the District of Columbia influenzal meningitis is observed about as frequently as epidemic meningitis.

2. Vomiting is the most constant symptom of meningitis. The physical signs while fairly typical are by no means constant in all patients, especially the very young. In case of doubt a diagnostic spinal puncture should be done.

3. Examination of the spinal fluid usually enables the physician to make a definite diagnosis and properly classify the meningitis. In addition to the examination of the spinal fluid in patients suspected of having tuberculous meningitis, X-ray examination of the chest and the intradermal tuberculin test greatly aid in making the diagnosis.

4. The mortality percentage from meningococcic meningitis during a 10-year period at the Children's Hospital, Washington, D. C., was 39.6. This is approximately the same as for the registration area of the United States. Up to the present time the serum therapy in this type of meningitis has given rather discouraging results, but Ferry's meningococcus antitoxin gives promise of a lower mortality rate.

5. It seems likely that better results will be obtained in the therapy of pneumococcic meningitis since Felton's anti-pneumococcus serum has become available.

6. The intravenous and intraspinal use of anti-influenzal serum is indicated in the treatment of influenzal meningitis. It is not generally realized that this form is as prevalent as that due to the meningococcus during non-epidemic periods.

7. While tuberculous meningitis can almost always be expected to terminate fatally, somewhat radical procedures might be tried in those cases diagnosed early. Those suggested are the intraspinal injection of oxygen or of artificial spinal fluid treated with ultraviolet rays and irradiation of the skull and vertebrae.

The authors wish to thank the following for statistical data used in this paper: Dr. Selwyn D. Collins, Office of Statistical Investigations, United States Public Health Service; Dr. James G. Cumming, Health Department, District of Columbia; Drs. Frank M. Houck and Francis F. Schwenther, Johns Hopkins Hospital, Baltimore, Md., and Dr. Roy P. Forbes, Children's Hospital, Denver, Colorado.

BIBLIOGRAPHY

Banks, H. S.: The Use and Misuse of Antitoxin. Pub. Health Rep., 1934, **47**, 132.

Ferry, N. S.: Meningococcus Antitoxin:
  I. Prophylactic and Therapeutic Tests on Guinea Pigs. J. Immunol., 1932, **23**, 315.
  II. Therapeutic Tests on Monkeys. Ibid., 1932, **23**, 325.
  III. Further Tests on Monkeys. Ibid., 1934, **26**, 133.
  IV. Further Tests on Guinea Pigs and Rabbits. Ibid., 1934, **26**, 143. (Jointly with Schornack, P. J.)

Fothergill, L. D.: Influenzal Meningitis and Its Specific Treatment with Antiserum and Complement. Proc. Interstate Postgrad. Assembly of N. Amer., 1933.

Lindsay, J. W., Rice, E. C., and Selinger, M. A.: Pneumococcus Meningitis in a Two-day Old Infant. M. Ann. District of Columbia, 1932, **1**, 188.

Ward, H. K., and Fothergill, L. D.: Influenzal Meningitis Treated with Specific Antiserum and Complement. Report of 5 Cases. Am. J. Dis. Child., 1932, **43**, 873.

Aspiration Treatment of Empyema in Children.—The influence of the organism on the mortality rate . . . . of the McEnery-Brennemann series: pneumococcus, 7.5 per cent; streptococcus hemolyticus, 28 per cent; streptococcus viridans, 33.3 per cent; and staphylococcus, 44.4 per cent.

Summary.—1. Sixty cases of empyema in children treated by aspiration alone, with a mortality rate of 13.3 per cent, are reported. 2. The organism and its virulence apparently influence the mortality rate. 3. The lower mortality rate among children with empyema treated by simple aspiration as compared to the other methods of treatment seem to justify its being tried first in every empyema encountered in children. *Extract from article by* Robert A. Strong, M.D., *New Orleans, La., Journal, Iowa State Medical Society, July, 1935, p. 334.*

THE VARICOSE ULCER*

Alec Horwitz, M.D., F.A.C.S.

Associate in Surgery, George Washington University School of Medicine

Varicose ulcer is the end result of a neurotrophic disturbance in the lower extremity resulting from the stagnation of blood serum in the tissues secondary to varicose veins.

Etiology

From the definition it becomes evident that the etiology of varicose ulcer is dependent on the cause of varicose veins. In the forefront of etiologic factors of varicosities stands heredity. Varicose veins is only one of many penalties man must pay for his upright position. Other factors are mechanical obstructions, such as tumors, pregnancy, etc.; disease with its involvement of venous wall and perivenous tissues; endocrine disturbances, whether ovarian, thyroid, or pituitary; and anomalies, congenital or acquired. To these may be added contributing causes such as sex, occupation, tight elastics, etc. Once we understand the causation of varicose veins and the pathologic physiology involved we can appreciate the various pathologic changes found in varicose ulcer. And we intend to trace this chain of events so that the logic of any treatment for varicose ulcer may be clarified and comprehended.

The normal venous return of blood from the lower extremity is undertaken by three interrelated routes:

1. The superficial or saphenous system, consisting of the long saphenous vein coursing on the medial side of the lower extremity from the toes to the sapheno-femoral junction in the groin and of the short saphenous vein running on the posterior aspect of the calf to end in the popliteal vein in the popliteal fossa, which lies, as the name indicates, superficially in the subcutaneous fat with no greater support than the adipose tissue and skin.

2. The deep venous system which consists of

---

* Read before a sectional meeting of the American College of Surgeons, Washington, D. C., April 12, 1935.

the femoral vein and its tributaries coursing upward between strong muscular, fascial and bony supports and which is joined by the long saphenous vein at the sapheno-femoral junction to continue upwards as the iliac.

3. The communicating system of veins which consists of numerous cross-veins connecting the superficial and deep systems and which is also surrounded by strong perivenous supporting tissues.

Normally the blood in the veins of all three systems is upward or cephalad, and this upward direction is made possible by three factors:

1. Expiration, which raises the diaphragm and reduces intra-abdominal pressure, thus aspirating blood from the lower extremity towards the chest.
2. Muscular contractions which compress the veins and empty them.
3. The presence of valves in all three systems which makes it impossible, if these are competent, for the blood to flow caudad.

The direction of flow as stated above is not a theoretical conclusion, but it has been corroborated by experimental work done by de Takáts, Tunick and others in which the direction of flow of radio-opaque solutions injected into the veins was checked by fluoroscopic observations.

With interference to any cephalad propogation of blood there is an increase in the venous pressure in all three systems, and because of the back pressure the veins lengthen and become tortuous, i.e., they become varicose. And it is only logical to find that this is first evidenced in the superficial system because this is the system of veins which is least supported by perivenous tissues. The further effect of interfering factors to normal upward flow is dilatation, which leads to stagnation of blood between valves and sooner or later to valve incompetency. Once the valves give way there is a reversal of flow, and instead of its being cephalad it is now caudad. Since this happens first in the superficial system its blood can reach the heart only through the deep system by way of the communicating system. Consider now that the valve at the sapheno-femoral junction is incompetent, and it becomes evident that some of the blood in the superficial system which has reached the deep venous system and been propogated upwards may and does return again to the superficial system. What this means is that this poorly oxygenated blood with its catabolic products is poured into the superficial system, a vicious circle being formed. It does not need a great deal of imagination to see the consequences of such a procedure. The vicious circle once started leads to an increased venous pressure and to increased stagnation of blood in the superficial system, until the burden becomes so great that the valves of the communicating system become incompetent and the vicious circle becomes even more evident. And sooner or later such is the venous pressure that it is no longer possible for an exchange of fluids between veins and tissue cells to occur. This leads to an edema of the tissue cells, with interference to their reception of nutrition and proper oxygenation from arterial capillaries. We have then statis, edema and finally anoxemia. But this reflux flow not only waterlogs the perivenous tissues stretching the fibers and cells apart but keeps the cells surrounded by serum, poorly oxygenated, lacking in food, and saturated with lactic acid and other products of metabolism. If these metabolic products are not eliminated acidosis develops.

With stagnation, edema and anoxemia present, secondary infection is only a question of time. Infection leads to inflammation of the perivenous lymphatics and their obstruction leads to lymph stasis and induration of surrounding tissues. As Payne says, these become nothing but "stagnating, stinking sewers inundating an adjacent field and rendering it barren." It is now simple for a slight trauma to initiate ulceration in such tissue. Actual ulceration begins with gangrene of the skin, secondary infection making the ulcer look like a carbuncle with raised, indurated margins, with a sloughing base surrounded by a generalized cellulitis of adjacent tissues. The extent of this process may continue until all layers of the limb are involved including the periosteum. The whole leg may assume the aspect of a weeping eczema, becoming fibrotic, hard, indurated and finally perhaps going on to gangrene. If we exclude the specific infections such as syphilis, tuberculosis, mycotic disease or those phagedenic ulcers due to some bacterial symbiosis, we find no relation between the severity of the infection and the size of the ulcer or its ability to heal. In fact, some of the ulcers which contain the most bacteria often heal the most rapidly.

To summarize, we have a perversion of physiology by reversal of flow, then stagnation, secondary infection and finally ulceration.

Diagnosis

I shall omit purposely, because of lack of time, any lengthy discussion of the differential diagnosis of varicose ulcer. Suffice it to say it is the most frequent ulceration found on the lower extremity, is painful, and is surrounded by an area of inflammation or cellulitis. If the varicosities are evident the diagnosis is quite easy. Occasionally one meets with an ulcer which is very resistant to treatment and which, because of physical characteristics, may arouse suspicion as to the true diagnosis.

The syphilitic ulcer has a punched-out appearance with sharply defined edges, and usually it is deeper. Serum rather than pus exudes from the dark red, easily bleeding granulations on the base of the ulcer. Add to that a positive history, positive serologic findings and the absence of varices and it remains only for the usual remarkable improvement with antiluetic treatment to clinch the diagnosis.

The tuberculous ulcer has undermined edges, the base is seldom red and usually there is a history that it began as a nodule which has broken down. Other foci of tuberculosis should make the suspicion stronger. Culture and biopsy clinch the diagnosis.

The malignant ulcer should be considered in any patient past middle life who has an ulcer that is resistant to treatment. Biopsy is the only sure method of diagnosis.

The mycotic, trophic or metabolic, and many other ulcers such as occur in sickle-cell anemia may be mentioned as possibilities. But once the suspicion is aroused that it is not a varicose ulcer, a more detailed physical examination and laboratory test may be used to arrive at a correct diagnosis. A more extended discussion of the diagnosis of the ulcers of the leg may be obtained by referring to the works of Cutting, Kilbourne or McPheeters.

Treatment

Without going into great detail and omitting all the numerous and usually ineffective lotions and ointments used from time immemorial by housewife, miracle man, quack, faddist and even the dignified physician, one may say that the treatment of varicose ulcer depends first on removal of the cause, i.e., the varicosities, and second on attention to the ulcer itself. Exactly which method of combination of methods to choose in such treatment depends on the individual case. In order to arrive at some conclusion it is necessary, aside from the general examination and complete history which should never be omitted in any case, that special examination be made of the venous and arterial circulations.

Tests for venous circulation.—The purpose of testing the venous circulation is to determine the presence of reversal of flow in the superficial, or communicating systems, or both, and whether the deep venous system is patent.

The Trendelenburg test is a test for competency of the valves in either the superficial or communicating systems or both. It is done as follows:

1. Empty the veins by elevating the leg and massaging the veins toward the torso.
2. Place pressure with hand or tourniquet on the fossa ovalis to prevent backflow in the long saphenous vein.
3. Place the patient in the upright position maintaining the pressure on the fossa ovalis.

If there is filling of the varicosities from below upward in less than 30 seconds the communicating valves are incompetent. If it takes more than 30 seconds the communicating valves are competent. Now release the pressure at the fossa ovalis, and if there is a distinct rush of blood in the long saphenous and filling of the varicosities from above downward the superficial valves are incompetent.

If there is no reversal of flow in either the superficial or communicating veins, i.e., if both valves are competent the Trendelenburg test is said to be *nil*.

If there is reversal flow in the superficial system, i.e., incompetency in the superficial valves, but the communicating valves are competent, the test is said to be Trendelenburg positive. Occasionally there may be no incompetency in the superficial valves but only an incompetency in the communicating valves. Then it is called Trendelenburg negative.

In large varicosities, usually with edema and ulcer formation, there will be found a combination of both, i.e., incompetency of both the superficial and communicating valves with reversal of flow in both. The test is then said to be double positive.

The other test of the venous circulation is Perthe's test, which is a test for patency of the deep circulation. It is obvious that we would not wish to remove superficial varicosities which are compensatory to a clogged deep venous system, and this test is, therefore, of the utmost importance.

Place a blood pressure cuff or tourniquet over the fossa ovalis with the patient in the erect position. Enough pressure is applied (usually about 60 mm. Hg.) to occlude the superficial venous flow. Then have the patient exercise or flex the knee about 10 times. If the deep venous system is patent the muscular action will pump blood from the superficial varicosities into the deep system, and the varicosities will definitely diminish in size. If these varicosities do not diminish but even increase in size and the patient complains of pain, there is obstruction to deep venous flow. A modification of this test is the applicaton of an occlusive bandage, such as the ace bandage, and having the patient return later to tell whether he felt relieved by wearing it or whether his condition has been aggravated.

Tests for arterial circulation.—The arterial circulation may be checked as follows:

1. Palpation of the dorsalis pedis, posterior tibial, popliteal and femoral arteries.
2. Determination of Buerger's angle of circulatory sufficiency.
3. Roentgen-ray examination of the vessels to determine presence of calcification.

Other more refined methods in case of doubt which may be used are:

1. The histamine acid phosphate test, in which a drop of the 1:1000 solution is placed on previously sterilized skin and vaccination made through the drop. Any delayed appearance or lack of intensity as compared to the normal response shows absence or lack of flow at the level at which the test is made.
2. The calorimetric estimate of the skin temperature.
3. Microscopic study of the capillaries of the nail fold.

Assuming that there is nothing in the history or in the physical examination to contraindicate the usual steps taken in the treatment of ulcer I shall outline, without claim to originality, what in my practice has been the most successful treatment and which I find, after perusing the literature in the last 5 years, is the method adopted by the vast majority of surgeons. To begin let me say that the treatment, be it remembered and emphasized, is an ambulatory one and that the patient must be ambulatory if some of the methods used are to be undertaken without danger.

1. If there is a positive or double positive Trendelenburg test the long saphenous vein is ligated at the sapheno-femoral junction under local anesthesia. The upper ligature is placed without previously crushing the vein to avoid the possibility of thrombosis at this point, and it is placed as near the junction with the femoral vein as possible. Occasionally a few large tributaries present themselves, and these too are ligated. A small section of the saphenous vein is removed and may be studied histopathologically. It is remarkable how this simple procedure gives immediate relief to the patient. To prevent a soft thrombosis of the long saphenous vein after the ligation an ace bandage is applied from the knee to the groin. Recently, injection of the distal portion of the vein with some sclerosing solution has been made before closing the incision to save time and to prevent the soft clot from forming in the long saphenous vein. The patient, it must be emphasized, is ambulatory all the time and does not need to lose time from his work.

2. Because of the edema and cellulitis it may be difficult to find any varicosities about the ulcer. I apply a fairly firm and thick cast of Unna's paste or Gelatin paste. This paste consists of gelatin, glycerin, zinc oxide and water heated to a fluidity for application. Some modifications are addition of phenol or resorcin. The cast supports the veins and at the same time allows seepage because of its porous nature; it, therefore, does not allow the irritating discharge from the ulcer to macerate the surrounding skin. It is even argued that the patient vaccinates himself with the pus seeping through the cast and that this accounts for the remarkable rapidity of healing. The cast may have to be

changed in a few days if there has been a great deal of edema, otherwise the cast may be left on for a week at a time or even longer. The patient is ambulatory all the time. Elastoplast, an elastic adhesive, is used by many to reduce the edema, and then Unna's paste is used. Soon the edema is reduced sufficiently to allow venous channels to be seen or felt, and these are then obliterated by the injection treatment.

There was a time when it was necessary to argue the operative versus the injection treatment. Now it is admitted that in 95 per cent of cases the injection treatment is the method of choice. It must be remembered that there are certain contraindications to this injection treatment. These are: (a) constitutional disease, such as advanced arteriosclerosis, tuberculosis, any acute infection, etc., (b) obstruction to the deep venous system, and (c) history of a recent infection or phlebitis.

I do not intend to go into details of the injection treatment, and will mention only some of the fundamentals, such as (a) the use of careful aseptic technic, (b) the use of an effective sclerosing solution which is sufficiently fluid to use a small gauge needle, which is non-toxic and which is easily kept sterile, (c) the necessity of intravenous injection without leakage into the perivenous tissues to prevent sloughing, and (d) the necessity of the patient being ambulant.

The solution to be used is one of personal choice. The most popular are sodium morrhuate and quinine and urethane. The injections may be made between applications of casts if these are used. They may be done as often as 3 times weekly. They may be given as high as the sapheno-femoral junction if the saphenous has been ligated. Untoward reactions are usually due to faulty technic, and serious complications occur in only 0.003 per cent of the cases, as shown by a report of many thousands of injections.

3. If the ulcer is slow in responding despite the definite diagnosis of its being a varicose ulcer then one may resort to the so-called venous heart. This consists of placing a good resilient rubber sponge slightly larger than the ulcer over the ulcer which has been previously covered with gauze soaked in Unna's paste, and the whole leg is then tightly bandaged with an elastic bandage such as the ace or Elastoplast. The sponge acts as a heart pumping blood out of the veins when the patient moves about. The ambulatory state must be emphasized or the whole purpose of the sponge is lost.

4. The vast majority of ulcers yield to the above treatment, which is ambulatory, economical, time-saving and encouraging to the patient who has refused to become bedridden. However, occasionally an operative procedure may have to be resorted to; and then excision with skin grafting is done. The grafts must be protected with an elastic bandage for some time. This is true also of an ulcer that is healed. Six months is not a long time to have occlusive bandages worn. Of the local applications to the ulcer to help epithelialization I have used para-beta-thio-cresol, which contains the SH radical. Cysteine similarly may be used for the same reason. To insure complete healing it is necessary to follow these cases for several years once every 3 or 6 months so that any new veins becoming evident may be injected.

ILLUSTRATIVE CASES

Case 1: R. N., a man, aged 31 years, was first seen, July 18, 1934, at my office, complaining of an ulcer on the right leg of several weeks' duration. He had had varicose veins for about 15 years and in 1923 had multiple ligations done below the knee. The varicosities recurred almost immediately. He had worn elastic bandages with some relief. In the past 11 years he had had some of the veins rupture and bleed, which was followed by ulceration which took a long time to heal. The present ulcer began 2 weeks previously following rupture of one of the veins. This led to swelling and redness of the whole leg to the knee. His physician had put him to bed but the ulcer had increased in size and the leg was getting worse. Examination revealed marked varicosities over the right leg below the knee with multiple linear scars of the previous ligations. There was a large ulcer about 10 cm. in diameter on the medial side of the leg, which was swollen, indurated and inflamed. The ulcer exuded a great deal of seropurulent fluid which had excoriated a large area of the skin surrounding the ulcer. Examination further showed good arterial circulation, a double positive Trendelenburg test and a negative Perthe's test. There was no history of recent phlebitis. The general examination was negative. Because of the edema and marked cellulitis Unna's paste casts were applied at intervals of 5 days for 2 weeks. On July 30, 1934, under local anesthesia through a small incision the right long saphenous vein was ligated at the sapheno-femoral junction. The patient was ambulatory at all times. On August 8, 1934, the ulcer was healed. Injections of quinine and urethane were begun and later sodium morrhuate was used. In all, he received 13 injections. On September 17, 1934, he was dismissed with his leg in fine condition, the ulcer healed, and the varicosities absent. When last seen in March, 1935, his leg was normal in appearance and he said he felt better than ever before.

Case 2: R. H., a man, aged 65 years, came to my office on December 13, 1933, complaining of an ulcer on his left leg of almost a month's duration. On November 20, 1933, he struck left leg against a milk case, abrading the skin. He applied some home remedies for a week but an ulcer formed and continued to increase in size. The leg became red and swollen and painful. He went to one of the compensation clinics where salves were applied without any improvement. Examination revealed an old man in fairly good health except for his extremities, which had very large varicosities extending from the ankle to the groin. The right leg showed pigmented areas of healed ulcers, and the left leg was the site of a very large elliptical ulcer, 12 cm. long and 7 cm. wide, extending over the tibia and posterior aspect of the leg. There was a single positive Trendelenburg test in each leg, and negative Perthe's test. No history of previous phlebitis was elicited. The ulcer was exuding pus profusely, and the leg was edematous and brawny in appearance. An Unna's paste cast was applied to the left leg from the toes to the knee, and on December 14, 1933, both long saphenous veins were ligated at the sapheno-femoral junction. Unna's paste casts were applied at weekly intervals, and the patient was sent back to work, the treatment outlined being done with the patient ambulatory. January 16, 1934, the ulcer was well healed.

Case 3: R. G., a woman, aged 53 years, was seen in consultation with a dermatologist on May 5, 1933. She had come to the dermatologist with a large ulcer on the right tibia and a markedly swollen, indurated leg. He had ordered her to the hospital on March 13, 1933, and she had stayed in bed there for 4 weeks having various remedies applied. She left the hospital, April 20, 1933, without much improvement. The ulcer covered almost the whole medial surface of the right leg, and there was a great deal of edema and cellulitis. The patient was very obese. There were no varicosities evident about the ulcer because of the edema, but a large varicose saphenous vein was present in the thigh. Unna's paste casts were applied weekly at my request, but the dermatologist asked me to see her again on May 31, 1933, because the ulcer was slow in healing. At this time the ulcer was smaller, the edema was less and the pus had changed to a serous discharge. The patient was ambulatory. At this time a rubber sponge and an ace bandage were applied. The sponge was changed 3 times in 2 weeks, and on June 14 an Unna's paste cast was applied. The ulcer was well on the way to healing. By July 5, 1933, the ulcer was practically healed. The patient was dismissed on July 27, 1933, with the ulcer well healed. In the last year and a half there has been no recurrence. Preliminary ligation of the saphenous and injection of the veins was advised.

Case 4: I. F., a woman, aged 72 years, came to my office, December 18, 1933, complaining of an ulcer of the left ankle of several months' duration. General examination was negative. Both legs showed moderate varicosities below the knee. Arterial circulation adequate. There was a negative Perthe's test and a Trendelenburg *nil*. There was a small punched-out ulcer posterior to the external malleolus—the so-called irritation ulcer. It was about 2 cm. in diameter, the edges were raised and slightly indurated, but there was no edema or cellulitis about the ulcer. The base was flat and grayish white. Unna's paste casts relieved the pain, but the healing was not very rapid. The ulcer was touched up with silver nitrate and a small sponge applied. In 2 weeks the ulcer began to pile up granulation tissue, and Unna's paste casts were reapplied. The ulcer finally healed in March, 1934. Injection of veins was refused. The treatment was ambulatory throughout.

BIBLIOGRAPHY

Cutting, R. A.: Chronic Leg Ulcers; Treatment with Unna's Paste Boot. Am. J. Surg., 1930, **8**, 743.

de Takáts, G., and Quint, H.: The Injection Treatment of Varicose Veins. Surg., Gynec. & Obst., 1930, **50**, 561.

de Takáts, G.: The Treatment of Varicose Veins (Editorial). Surg., Gynec. & Obst. 1929, **49**, 114.

de Takáts, G.: Ambulatory Ligation of Saphenous Vein. J. A. M. A., 1930, **94**, 1194.

Kilbourne, N. J.: The Varicose Vein Slough. J. A. M. A., 1930, **95**, 787.

Kilbourne, N. J., Dodson, W., and Zeiler, A. H.: Varicose Veins Solutions; Researches in Toxicity, Slough Producing Properties, and Bactericidal Action as Related to Phlebitis and Embolism. Surg., Gynec. & Obst., 1932, **54**, 640.

McPheeters, H. O.: Injection Treatment of Varicose Veins by Use of Sclerosing Solutions. Surg., Gynec. & Obst., 1927, **45**, 541.

McPheeters, H. O.: Varicose Veins; Injection Versus Operative Treatment; Statistical Report. Surg., Gynec. & Obst., 1929, **48**, 819.

McPheeters, H. O.: Ulcer Cruris; Etiology, Pathogenesis, and Treatment. Surg., Gynec. & Obst., 1928, **47**, 469.

McPheeters, H. O., Merkert, C. E., and Lundblad, R. A.: Causes of Failure in Injection Treatment of Varicose Veins. J. A. M. A., 1931, **96**, 1114.

McPheeters, H. O., and Merkert, C. E.: Varicose Ulcers; Treatment with "Rubber Sponge or Venous Heart" and Supportive Bandage. Surg., Gynec. & Obst., 1931, **52**, 1164.

McPheeters, H. O., and Rice, C. O.: Varicose Veins; Circulation and Direction of Venous Flow; Experimental Proof. Surg., Gynec. & Obst., 1929, **49**, 29.

McPheeters, H. O., Merkert, C. E., and Lundblad, R. A.: Mechanics of Reverse Flow of Blood in Varicose Veins as Proved by Blood Pressure Readings; Its Clinical Application to Injection Treatment. Surg., Gynec. & Obst., 1932, **55**, 298.

McPheeters, H. O., and Rice, C. O.: Varicose Veins; Complications, Direct and Associated, Following Injection Treatment; Review of Literature. J. A. M. A., 1928, **91**, 1090.

Tunick, I. S., and Nach, R.: Sodium Morrhuate as Sclerosing Agent in Treatment of Varicose Veins. Ann. Surg., 1932, **95**, 734.

AORTIC EMBOLECTOMY*

Report of a Case

Harry H. Kerr, M.D., C.M.

Clinical Professor of Surgery, George Washington University School of Medicine

Arterial embolectomy is a surgical emergency that we should all be prepared to meet. Its recognition should be easy. Sudden pain in an extremity followed by coldness, cyanosis and absence of arterial pulsation immediately suggests sudden arrest of the arterial circulation. Such an occurrence in a patient suffering with cardiovascular disease or convalescing from operation or parturition demands immediate attention. Nearly all of the successful cases reported were operated upon within 24 hours of the occurrence of the occlusion. Of 98 cases recently reported the operative removal of the embolus was completely successful in 55 per cent.

The removal of an embolus from the main artery of an extremity can usually be accomplished under local anesthesia. The embolus is prone to become arrested at the origin of a large branch of the artery. If the artery is temporarily occluded by a tape or rubber-covered clamp above the embolus the artery may be opened through a transverse incision and the embolus expelled. The tape or clamp should then be loosened to allow the restored arterial stream to wash out any remaining fragments. With the closure of the arterial incision by a continuous, everting, vaselinized silk suture the operation is completed.

When, however, a large embolus occurs, originating usually from the cardiac auricle, it may be arrested at the aortic bifurcation. Here the problem is much more serious. The exposure of the aorta at its bifurcation and an arteriotomy is a major operative procedure in a patient who is usually a poor operative risk, to say the least. A recent experience is such a case, and the suggestion of a new method of handling such a situation is my excuse for appearing before you this morning.

Report of Case

S. F., a man, aged 28 years, gave a history of cardiac disease with arrhythmia for at least 5 years. He had been under the care of Dr. James A. Lyon for the past 3½ years with mitral stenosis and a mixed auricular flutter and fibrillation. He had been in fair health, however, and had been able to carry on his occupation as cashier without much disability. Several days before I saw him he had experienced a rather sudden discomfort in the calves of both legs, and shortly thereafter a sudden sharp, belt-like pain with immediate coldness of the lower extremities and inability to use his legs. He was taken home from work and seen by his family physician. The legs, especially the left, were cold, with mottled cyanosis. He was seen by Dr. Custis Lee Hall who recognized the vascular origin of his disability and suggested that I be called. He was admitted to Garfield Memorial Hospital where I first saw him. He was in bed, rather pale, not suffering excessively, and unaware of the seriousness of his condition. His heart action was rapid and irregular. His temperature was subnormal, 95°F. The body was distinctly colder from the waist-line down, and the left leg was quite cold and lifeless. He could not move the left foot. The extremity was mildly cyanotic, the skin over the foot and toes wrinkled. There was anesthesia from the middle of the leg downward. The right leg was less cold and appeared normal. A faint pulsation could be felt in the right femoral artery, but none in the left. I made a diagnosis of "saddle-embolus" of the aorta and advised immediate operation. Dr. Lyon was asked to see him, and he concurred in the diagnosis and the indications for operation. He felt that the cardiac condition would stand the necessary interference. An electrocardiogram was taken before operation. Under ethylene and nitrous-oxide anesthesia a long, left, pari-median incision was made with the patient in the Trendelenberg position. The intestines were packed up into the upper abdomen. When the posterior parietal peritoneum was incised and the aorta exposed, it was found remarkably small. It pulsated normally. Both common iliac arteries were small, but the left one was smaller than the right. There was pulsation in the right common iliac artery, but none in the left. The artery was not palpated for fear of disturbing the embolus. The aorta was dissected out to at least 2 inches above the bifurcation, where it was taped, and both common iliac arteries were dissected downward for the same distance and taped. The tapes were drawn tightly around the common iliac arteries and clamped. Dr. Warfield drew the tape around the aorta and controlled the occlusion with his hands. The left common iliac artery was then incised transversely about 1 inch below the bifurcation. A small amount of dark blood flowed from the artery, but did not spurt. No clot could be seen. An attempt to pass a small curet into the vessel to dislodge the clot seemed risky, because the head of the curet completely filled the lumen, and it was feared that the embolus might be dislodged into the right common iliac artery. The artery was, therefore, sucked out with a metal aspirator until the instrument could be passed by the bifurcation to the occluding tape on the aorta. The suction was fairly powerful, and probably broke up the clot and aspirated it into the receptacle. The aortic tape was then released, and bright blood spurted from the common iliac incision. The flow was again controlled. The incision in the artery was closed with a running everting silk suture. When the tapes were removed the incision had to be reinforced at one point, but when the closure was complete it was seen that pulsation had been restored to the left common iliac artery. The posterior peritoneum was resutured and the abdomen closed in layers without drainage. His immediate postoperative reaction was satisfactory, although his temperature did not rise to normal until the third day. During this time he perspired profusely, but the condition of the legs improved. On the third day pulsation could be felt in the posterior tibial artery behind the malleolus on the left, the affected side. Both legs appeared normal, and were much warmer than before operation. On the eighth day postoperatively, he was again seized with sudden pain in both legs followed by numbness and a burning sensation. His pulse rose from 92 to 150 and became irregular. The temperature jumped up to 100.4°F. The blood pressure was 170 systolic and 110 diastolic. The pain ameliorated, but the following morning had not disappeared. The legs were then cyanotic and cold. No pulsation could be felt in either femoral artery, and Dr. Lyon concurred in the opinion that the vessel should again be explored. Both legs were anesthetic. Without anesthesia the left tibial artery was exposed and found empty. The left popliteal artery was likewise explored and found to be empty. The left femoral, under local anesthesia, was exposed below Poupart's ligament, and a clot 7 cm. long was withdrawn from the vessel, apparently rising at the site of the origin of the profundis femoris artery. No bleeding, however, followed the withdrawal of this clot, and the metal aspirator was passed into the artery to its full extent, still without bleeding. The instrument was not long enough to reach the aortic bifurcation. The right femoral artery was then exposed at the same site and another long clot removed, following which there was active bleeding. The various arterial incisions were closed as before, and the patient was returned to bed. Following this exploration the pulse dropped to the neighborhood of 100, and the temperature, which had fallen to 94°F., returned to normal. His condition seemed slightly improved and the appearance of the right leg was better. The following day he had a third attack of severe pain in the legs. Both legs became dark in color. A slight pulsation could be felt in the right femoral artery, but none in the left. It was evident that further emboli had lodged in his lower extremities. Within a few days symmetrical, dry gangrene of both legs and feet developed to within 3 inches of the knee joint. Both thighs were fairly warm. The right femoral artery pulsated, but the left did not. The leukocytes were 17,000, with polymorphonuclear neutrophiles predominating. He was advised that he should have a double amputation. His heart rate was 108, his condition fairly good, and Drs. Lyon, Wharton and Leadbetter concurred in the necessity for amputation. Therefore, on the eighth day after his second operation and the seventeenth day after his first operation both thighs were amputated at the juncture of the lower and middle thirds under spinal anesthesia. His condition following the operation was very good. His heart rate dropped to between 90 and 100, and his temperature became normal. The stumps healed satisfactorily. Two weeks following amputation, while getting up in bed in the early morning, he suddenly died. Permission was obtained for a partial necropsy. Through the abdominal incision the aorta and its bifurcation were removed, as well as the heart. A white embolus was found in the aorta, partly occluding the right common iliac artery, and completely occluding the left. Just below this, in the left iliac artery, was a recent, red thrombus that extended throughout the portion of the vessel removed. Examination of the heart revealed mitral stenosis and hypertrophy of the right side, and there was fresh thrombosis of the left coronary artery.

---

* Read before the Annual Scientific Assembly of the Society, May 2, 1935.

This was my first experience in operative treatment of a 'saddle-embolus.' It suggested to me the possibility of handling such cases, in the future, in a much simpler way. The success in removing the embolus by suction at the first operation did not impress itself upon my mind until after his second operation. I believe that if I had used a rubber tube on the suction apparatus and gradually inserted it up the aorta with steady suction until fresh blood appeared, I could have sucked out this second embolus which again straddled the bifurcation.

I would suggest that in cases of 'saddle-embolus' of the aorta the femoral artery be exposed in Scrapa's triangle under local anesthesia. A soft rubber tube slightly smaller than the lumen of the vessel and attached to a suction apparatus should then be passed into the vessel a centimeter at a time after thorough lubrication with sterile oil. After advancing the tube up the vessel for a centimeter it should be withdrawn and again advanced up the vessel an additional centimeter. In this way, by advancing the suction a centimeter at a time, any clot in the vessel may be caught in the tube and withdrawn. Should the tube be forced immediately up to the bifurcation there would be danger of forcing the embolus into the opposite iliac artery.

Such a surgical attack upon a 'saddle-embolus' of the aorta would be a minor procedure compared to the extensive abdominal dissection that is necessary to expose the aorta and its bifurcation. In cases of embolic block of the main vessels of the upper extremity in the axilla or of the lower extremity at the femoral or popliteal area the same procedure could be carried out.

COLOSTOMY PRELIMINARY TO URETERO-ENTERIC ANASTOMOSIS*

REPORT OF A CASE

WILLIAM ROSS MORRIS, M.D., F.A.C.S.

Clinical Instructor in Surgery, George Washington University School of Medicine

Ureter transplantation as developed by Dr. Robert C. Coffey has come to be a valuable and accepted method of treatment in selected cases of several different conditions, such as (1) extrophy of the bladder, (2) extensive recurrent papillomatosis of the bladder, (3) carcinoma of the prostate, and (4) persistent vesicovaginal fistula.

Extensive tuberculosis of the bladder that fails to subside or continues to progress following nephrectomy for clinically unilateral renal tuberculosis presents a most difficult problem in treatment and one in which ureteral transplant may be the treatment of choice. The development of urethral stricture increases greatly the seriousness of the condition. Some of these cases clear up with ideal sanatorium care, but others run a fatal course. The always present frequency of urination acts in a vicious way to extend the lesion. Diversion of the urinary stream is the only method of putting the bladder at complete rest. Ureteral transplantation would appear to offer an ideal method of accomplishing this end. Such cases have been successfully treated in this way by Coffey and others. Cystectomy performed at the time of ureteral transplant or at a later date may be advisable in certain cases. However, the constant dangers of infection at the site of the anastomosis and of ascending infection into the kidney render uretero-enteric anastomosis a hazardous undertaking. The results of such infections may be most disastrous, particularly in this group of patients who at best are poor operative risks and tolerate poorly pyogenic infections. Many surgeons, therefore, feel that the risks entailed in transplanting the sole remaining ureter into the bowel are too grave to justify the procedure if a safer method of diverting the urinary stream, such as ureterostomy or nephrostomy, can be employed. However, in those cases where it is so essential to eliminate the hazard of infection this may be accomplished, as suggested by Nesbit, by performing a preliminary sigmoid colostomy of the so-called double-barrel type. Then by irrigations the lower loop can be rendered sufficiently aseptic to eliminate the hazard of infection from the subsequent ureteral transplant. The following case illustrates the successful use of this procedure in a case so desperate as to render very doubtful a satisfactory outcome from any procedure.

REPORT OF CASE

P. P., a white man, aged 34 years, had had tuberculous cervical adenitis when 6 years of age. In 1924 left mastoidectomy had been performed, and his physician had told him a tuberculoma was found. About 1929 he began to have bladder symptoms of urgency, frequency and hematuria. Examination revealed tuberculosis of the bladder and left kidney. Left nephrectomy was performed in 1930, a far-advanced tuberculous kidney being removed. About a year later left orchidectomy for tuberculous epididymitis was performed. In 1932 an Albee type of spinal fusion was done for tuberculosis of one of the lower thoracic vertebrae. A good result was obtained from this procedure. In spite of all treatment, as bedrest, high caloric diet, instillations of gomenol, etc., the bladder symptoms never subsided and later became much more marked. The patient was referred to me in April, 1934. At that time he was voiding about every 15 to 30 minutes, day and night. There was marked urgency and bladder tenesmus. On several recent occasions he had been unable to void and had to be catheterized. His physician had told him that this was caused by strictures in the posterior urethra. Physical examination showed him to be emaciated and weak. There were scars from left mastoidectomy, from a left oblique lumbar incision and over the left scrotum. The left testicle was absent. A number 12 French soft rubber catheter was passed with difficulty due to a stricture of the posterior urethra. The bladder capacity was 3 ounces. Examination of the urine showed much pus, some red blood cells and a large amount of albumin. Stain of the urinary sediment revealed many tubercle bacilli. The hemoglobin was 85 per cent (Dare method), the erythrocytes numbered 3,900,000, and the leukocytes 11,800, with 69 per cent polymorphonuclear neutrophiles. The Kahn test was negative. The blood urea was 16 mg. per 100 cc. of blood. The phenolsulphonephthalein test of renal function gave 35 per cent return in 2 hours. X-ray examination revealed the right kidney to be somewhat enlarged and normal in shape and position. X-ray examination of the chest showed some enlargement of both hilar areas with some slight fibrosis extending into both lungs, and a few old calcified tubercles were seen. Urograms showed some dilatation of the kidney pelvis and some blunting of the calices, and some dilatation of the right ureter, which was thought to be due to the fibrosis in the bladder wall producing some occlusion of the ureteral orifice. There was no x-ray evidence of tuberculosis of the kidney. The bladder was small and normal in shape. Because of his poor condition and lowered resistance to infection ureteral transplantation seemed too hazardous an undertaking. Therefore, colostomy followed by irrigations of the lower loop was decided upon in order to get a relatively clean field in which to do the transplant. On May 14 exploration of the abdomen was done through a muscle-splitting incision in the left lower quadrant. The right ureter was found to be dilated to the size of an index finger, but it was soft and pliable, with no evidence of tuberculous involvement. The right kidney was considerably larger than normal but on palpation appeared to be normal. A portion of the sigmoid colon was brought into the wound to make a colostomy of the double-barrel type. The convalescence from this operation was uneventful. The bladder symptoms were so severe that sedatives were required frequently for relief. The colostomy was opened on the fifth postoperative day with the cautery knife. Thereafter the upper loop was treated with enemas twice daily and the lower loop with ½ gallon of warm potassium permanganate (1:4000) and drained from below by means of a rectal tube. By June 8 the lower loop of intestine appeared clean and his general condition had improved somewhat, so that it was felt that the uretero-enteric anastomosis could be undertaken with a fair degree of safety.

---

* Read before the Annual Scientific Assembly of the Society, May 2, 1935.

A low right paramedian incision was made, and the intestines were packed upward in the peritoneal cavity. The parietal peritoneum overlying the lower end of the right ureter was incised, and the ureter was picked up and cut between clamps. The lower end was ligated and dropped back and the peritoneum closed. A soft rubber catheter of the Robinson type, size 14 French, was introduced 3 inches into the open end of the ureter and held in place by a double O catgut suture which was run through a point in the circumference of the lower end of the ureter and tied around it. The catheter was put in to insure adequate drainage during the immediate postoperative period and came away on the tenth postoperative day. The wall of the rectum was now picked up at a point about 16 inches from the anus and a longitudinal seromuscular incision 2 inches in length was made. The muscle coats were stripped back laterally for a distance of ½ inch. At the lowest point in this area the mucosa of the bowel was opened to admit the severed end of the ureter. This was done without fear of contamination, although the area was kept well packed off. The end of the ureter with the projecting catheter was now introduced into the lumen of the rectum, and the lower end of the catheter was brought out of the anus by an assistant's finger from below. Uretero-enteric anastomosis was completed by the usual Coffey technic. The abdominal wound was closed without drainage.

The postoperative convalescence was satisfactory. There was a good urinary output through the catheter from the beginning. The bladder was lavaged with saline solution daily as long as he remained in the hospital. At first thick pus was obtained, but this gradually decreased. The interval between passages of urine gradually increased until he was passing it about every 2 hours. Occasionally, if the rectum became unusually full of urine, there was a slight overflow through the colostomy. This was never a very troublesome matter. The colostomy functioned satisfactorily. The complete relief from the bladder symptoms which had been so severe was most gratifying to the patient. Examination of urine obtained from the catheter still in the ureter on June 13 showed one plus albumin and some pus cells. Stains showed no tubercle bacilli. On June 23, the blood urea nitrogen was 20 mg. per 100 cc. blood. The P. S. P. test gave 25 per cent return. This was not considered to be accurate, since the catheter had come away from the ureter and some of the urine was lost by backflow through the colostomy. On June 28, an intravenous urogram showed marked diminution in the size of the right ureter as compared with its size at the previous urogram. There was no evidence of tuberculosis in the kidney. His general condition improved rather rapidly, and on June 28 he was discharged from the hospital feeling well.

The patient continued to feel well, was up and around, and gained weight and strength. There was no bladder discomfort. The colostomy caused very little inconvenience, since there was usually only 1 bowel movement a day. The urinary control was perfect and he had to pass urine only about every 2 or 3 hours. The improvement continued until July 22, when he complained of severe headache not relieved by the usual remedies and nausea and vomiting.

He was admitted to the hospital and examination revealed him to be stuporous. The temperature was 101°F., the pulse rate 100, and the respiratory rate 22. Kernig, Brudzinski and bilateral Babinski signs were positive. The patellar reflexes were increased, and there was bilateral sustained ankle clonus. Lumbar puncture revealed a spinal fluid pressure of 18 mm. of mercury which rose to 26 mm. when the patient strained. Examination of the spinal fluid showed slight turbidity, globulin three plus, cell count of 113 per c.mm., lymphocytes 30 per cent, and polys 70 per cent. No organisms were found on smear or culture. Examination of the urine obtained from the rectum showed a faint trace of albumin, many pus cell (clumped), and many cocci and bacilli. The hemoglobin was 67 per cent (Dare method), the erythrocytes numbered 3,700,000 and the leukocytes 10,200, with 80 per cent polymorphonuclear neutrophiles. The blood nonprotein nitrogen was 30 mg. per 100 cc. of blood. The P. S. P. output was 42.5 per cent in 2 hours. A diagnosis of tuberculous meningitis was made. His condition gradually grew worse and he died on August 3.

Autopsy revealed (1) extensive tuberculous meningitis, (2) old healed tuberculous lesions in the apex of the left lung, (3) tuberculous cystitis with tuberculous ulceration of right ureteral orifice, (4) compensatory hypertrophy of the right kidney with some tuberculous involvement and, (5) excellent condition at the site of the ureteral transplantation into the rectum.

SUMMARY

1. Bladder lesions which progress following nephrectomy for unilateral renal tuberculosis constitute a serious obstacle to the ultimate

recovery and, especially when complicated by urethral stricture, are likely to terminate fatally.

2. Diversion of the urinary stream and thus putting the bladder at complete rest is a sound method of treatment.

3. This may be accomplished by nephrostomy, ureterostomy, uretero-enterostomy. Of these the latter is often the most desirable procedure but is attended by the distinct hazard of infection in patients who are at best poor operative risks and who tolerate infections poorly.

4. Colostomy as a preliminary procedure is a method of eliminating the hazard of infection.

5. A case is presented which was successfully treated by this method but unfortunately later developed tuberculous meningitis which, as usual, was fatal.

BIBLIOGRAPHY

Nesbit, R. M.: Advanced Bladder and Urethral Tuberculosis: Treatment by Ureteral Transplantation Following Preliminary Colostomy. Am. J. Surg., 1933, 22, 547.

MASSIVE LYMPHOSARCOMATOUS INVASION OF THE HEART

Report of a Case

Wallace M. Yater, M.D., F.A.C.P.
Professor of Medicine, Georgetown University School of Medicine
and
H. H. Leffler, M.D.
Pathologist, Gallinger Municipal Hospital

Metastases to the heart are uncommon, probably because the active contraction of the heart makes that organ unfavorable for implantation and growth of aberrant cells. Secondary invasion of the heart has occurred, however, from neoplasms of all of the main organs, usually as part of general dissemination but sometimes as a more or less solitary metastasis from a nearby organ and rarely by direct extension from an adjacent organ. Carcinomatous metastases are more common than sarcomatous.

The lesions are frequently in the form of nodules, discretely or diffusely scattered throughout the myocardium. They may project into the chambers of the heart or externally. The nodules may be very small, or they may attain great size and cause enlargement and deformity of the heart. Instead of nodules the invasion may be a diffuse infiltration and replacement of the myocardium. This form is seen usually in cases of sarcoma and frequently in cases of leukemia. The valves of the heart are rarely involved and then by implantation on their surfaces. The invasion of the heart apparently occurs most commonly by way of the blood stream, and the right side of the heart is more often or more extensively involved than the left.

Serious cardiac dysfunction is rarely observed, even when there is extensive neoplastic involvement of the heart. This fact demonstrates the great reserve capacity of the myocardium. In the case to be reported there was nothing to indicate any injury to the heart muscle. In the literature the cases of Grawitz, Morison, Napp, Ehrenberg and Windholz presented such severe involvement that it appeared impossible for the heart to continue beating long enough for the invasion to become so extensive, and yet the patients died mainly of cachexia and not of heart failure.

Occasionally congestive heart failure occurs as a part of the terminal stage of a case. Sudden death has occurred, but this is usually due to sudden occlusion of either the mitral or the tricuspid orifice by the penetration of an intracavitary pedunculated tumor, which is practically always a primary neoplasm of the heart. Subacute bacterial endocarditis may be suggested by the throwing off into the circulation of bits of malignant tissue projecting into a cavity of the heart, and fever is frequently present in cases of malignant disease (cases of Rist and Rolland, Widal and Abrami, and Carnot and Lambling). Heart block is rarely due to tumor of the heart, as attested by the cases of Armstrong and Mönckeberg and of Lloyd of primary tumor, and of Rösler of metastatic carcinoma. Of great value in the diagnosis of metastatic invasion of the heart is the onset of auricular fibrillation or auricular flutter in a case of recognized malignant neoplasm of some other organ. The 3 cases reported by Fishberg were diagnosed in this way. The accumulation of bloody fluid in the pericardial sac is also highly suggestive, and even a bloody pleural effusion should make one suspicious. A localized enlargement or an irregularity in the outline of the heart in the roentgenogram should bring the possibility of tumor of the heart to mind. Primary tumors of the heart occasionally present suggestive evidence of their presence. Those interested in this subject may refer to a review of tumors of the heart and pericardium by one of us (W. M. Y.).

Report of a Case

Clinical History.—The patient, a colored woman, aged 49 years, entered the Gallinger Municipal Hospital on July 17, 1933, and died on August 7, 1933 (Case No. A33301). She stated that she had had "indigestion" for the previous 7 weeks, consisting mainly of a nondescript epigastric pain and nausea and vomiting having no apparent relation to the taking of food. The vomitus was usually yellowish and contained no coffee-ground material. She had had a small hematemesis, however, after an x-ray examination of the stomach at another hospital some 4 weeks before. She had always been constipated. There had been rapid loss of weight and strength. The family history was irrelevant, and the patient had been well most of her life. The menopause had occurred 3 years before. During the past year she had had nocturia 3 or 4 times each night. There were no symptoms suggestive in any way of cardiac disease.

Physical examination revealed a middle-aged colored woman who was still fairly well nourished. The entire upper left quadrant of the abdomen was filled by a large mass. It was rounded and descended considerably on inspiration. The liver edge was palpable a short distance below the costal margin and was thought to be somewhat nodular. The examination was otherwise essentially negative. There was no jaundice or lymphadenopathy. The heart was apparently normal in size; the sounds were normal, and there were no murmurs. The blood pressure was 160 systolic and 95 diastolic. The rhythm was regular, and the rate ranged from 80 to 110 most of the time. Fluoroscopic examination of the stomach gave evidence of a defect due either to an intrinsic gastric lesion or to an extragastric tumor, but the examination was unsatisfactory. Cystoscopic examination showed the right kidney function to be somewhat impaired and the left kidney to be non-functioning. An x-ray film showed the right kidney to be faintly visualized and apparently normal, but the left renal shadow could not be discerned. The hemoglobin was 75 per cent, and the leukocytes numbered 8,800 per cubic millimeter of blood with 71 per cent polymorphonuclear neutrophiles. The Kahn test of the blood was negative. An alcoholic test meal revealed the absence of free hydrochloric acid in the gastric juice, and the total acidity ranged from 25 to 35. The van den Bergh reaction was normal. The urine contained a trace of albumin and many leukocytes. An irregular fever was recorded, the highest temperature being 102.4°F., except on the last day, when it rose to 104.2°F. The course was steadily downhill without at any time symptoms or signs of cardiac dysfunction.

Necropsy.—The body showed relatively little emaciation. There was nothing remarkable about the external appearance. The head and neck were negative except for the presence of caries of many teeth. The subcutaneous fat was well preserved. The lungs showed pulmonary edema and moderate anthracosis but no metastatic lesions. The liver was moderately increased in size, weighing 1950 grams, cut with diminished resistance, and presented a pale yellowish-brown surface. No metastatic nodules were seen in the liver. The gall bladder contained many brownish-black gall stones varying in size from 1 millimeter to 2 centimeters in diameter. The spleen was approximately twice normal size, weighing 300 grams. Its pulp was quite mushy, and the splenic corpuscles stood out prominently in relief. The stomach and intestines appeared to be essentially normal, except for moderate dilatation and congestion. The pelvic organs showed nothing of note. The only organs showing lesions of any consequence were the pancreas, kidneys and heart. The head of the pancreas seemed to be enlarged by a nodular mass approximately the size of an average lemon which on section presented a hard white surface. An area of the body of the pancreas immediately adjacent to this nodule, about 1.5 centimeters in diameter, was red, soft and apparently necrotic. Otherwise the pancreas, except for increased firmness, seemed to be essentially normal. The nodule in the region of and involving the head of the pancreas had not encroached upon the common bile duct. The left kidney weighed 1150 grams. It measured 22 x 12 x 10 centimeters and was embedded in an abundant amount of perirenal fat. Its capsule stripped with ease, revealing a whitish surface over which numerous dilated blood vessels were seen. Diminished resistance was noted when the organ was sectioned. There were numerous soft, rounded, whitish nodules throughout, practically completely replacing the kidney substance. The pelvis was completely obliterated. The renal artery and vein were remarkably increased in size. The ureter was not dilated. It was this kidney which formed the large palpable abdominal mass. The right kidney weighed 550 grams and was very adherent to the under surface of the liver. It presented practically the same appearance externally and internally as the left kidney, but there was still renal tissue left between the nodules, and the kidney pelvis was not obliterated (fig. 1). The urinary bladder was essentially normal.

The heart showed nothing externally to indicate the extensive metastatic invasion in it. It was not enlarged. On opening it the left auricle was found to be normal. In the middle of the posterior wall of the left ventricle there was a large, moderately well defined area of pale tumor infiltration of about the same consistency as the myocardium. This area was about 2 centimeters in diameter. It extended into the septum. It also involved the epicardium and caused it to be thickened. The epicardial involvement was more extensive than the intramuscular portion; the tumor invaded the subepicardial fat, especially in the upper left ventricular region, where it was 1.7 centimeters thick. Here it completely surrounded part of the circumflex branch of the left coronary artery but did not compress it. The right side of the heart was more extensively involved than the left. The wall of the right auricle contained many nodules, the largest being 3.5 centimeters in its greatest dimension (fig. 2). The larger nodules projected into the cavity of the auricle. Other nodules formed fungus-like projections from the pectinate muscles. In fact, most of the wall of the right auricle seemed to be replaced by tumor. The wall of the right ventricle contained a large nodule in its posterior portion, which was part of the nodule in the left ventricle. There was also another large nodule in the lateral portion, which projected into the cavity of the ventricle as a fungus-like mass. Just below the pulmonary valve there was also a large nodule, which was mainly subepicardial but which projected as a small fungus-like mass into the cavity of the conus arteriosus. The uninvolved portion of the myocardium appeared normal. The valves were intact. There was no tumor tissue in the region of the major portion of the conduction system. The root of the aorta was moderately atherosclerotic. The coronary arteries were patent and only moderately sclerotic.

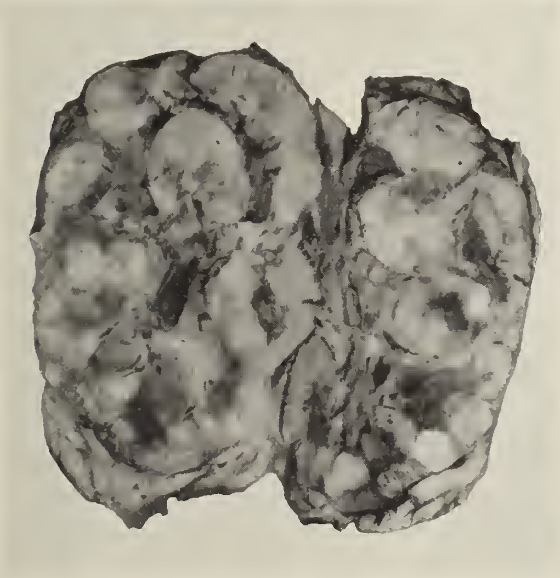


FIG. 1. THE SECTIONED RIGHT KIDNEY WITH LARGE TUMOR NODULES

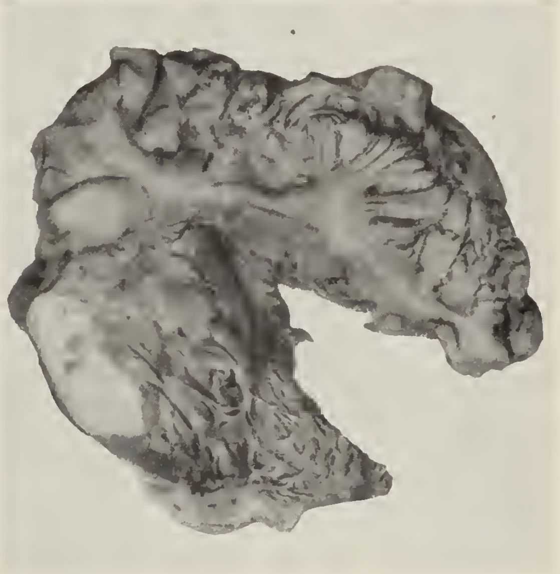


FIG. 2. THE OPENED RIGHT AURICLE AND VENTRICLE, SHOWING THE GREAT INVASION OF THE WALLS OF BOTH CHAMBERS BY TUMOR

Histopathologic Study.—As the pancreas appeared to contain the primary lesion the description of this organ will be given first. The mass at the head was connected with a smaller mass which showed central necrosis. The smaller mass proved to be a regional lymph node, and was the probable origin of the malignant disease. The pancreatic tumor consisted of small round cells which appeared to be of lymphatic origin. They were all fairly uniform, of small size and showed only a moderate degree of mitosis. Malignant cells were seen to be crowding into the pancreatic structure and compressing the pancreatic parenchyma with resulting atrophy and in some areas necrosis. In many areas the tumor cells had so densely infiltrated the pancreatic tissue as to make it difficult to distinguish tumor cells from atrophied acinar cells of the pancreas. This could be determined only by observation with the high power. The entire histological picture, however, was that of a densely infiltrating mass invading the head of the pancreas and not that of a growth from the pancreas itself. The attached regional lymph node showed the same type of structure, but the normal architecture was entirely lacking. The reticulum seemed to be about normal in amount but appeared to be degenerated to some extent, and the lymph sinuses showed some distention.

The renal parenchyma was very largely overgrown and replaced by diffusely proliferating, compactly disposed tumor tissue. It was composed predominantly of roughly rounded and ovoid cells of medium size. These presented a narrow, uniform or irregular zone of pale basophilic cytoplasm and relatively large round or indented leptochromatic nuclei with 1 or 2 distinct or poorly formed, small eccentric nucleoli. These cells not infrequently showed mitotic figures. They were more or less intermingled with scant to moderate numbers of small lymphocytes. Large pale cells having an ample, usually uniform zone of light basophilic cytoplasm and relatively large, round, delicately leptochromatic nuclei with prominent nucleoli occurred here and there, singly or dispersed in small numbers. These cells frequently showed mitotic figures. A few eosinophiles were occasionally seen. In occasional areas ramifying collagenous fibrils occurred. A loose-meshed, diffuse reticulum was present. The tumor process stopped abruptly at the Bowman's capsules so that the glomeruli remained intact. The latter were swollen and showed scanty infiltrations of neutrophilic leukocytes. Collecting tubules in the pyramids were frequently filled with pus. The muscular blood vessels also survived the neoplastic overgrowth.

The myocardium where involved was largely replaced by a diffuse overgrowth of tumor tissue consisting of medium-sized lymphocytes intermingled here and there with small numbers of small lymphocytes and a few lymphoblasts. Very occasionally eosinophilic leukocytes were seen. The medium-sized lymphocytes frequently exhibited mitotic figures. A few minute foci of pyknosis and karyorrhexis were noted. A diffuse loose-meshed reticulum was present. A few scattered strands of atrophic muscle or ragged islands of infiltrated, chaotically separated and disorganized muscle fibers remained in areas of heart replaced by the tumor (fig. 3).

In the liver bulky, roughly rounded nodules of medium-sized lymphocytes were seen dispersed throughout the midzonal areas of the hepatic lobules. Very few small lymphocytes and occasional neutrophilic leukocytes occurred in these nodules. Scanty fibroblastic proliferation and ramifying fibrils of collagen were present. The periportal areas showed dense and extensive infiltrations of the same types of cells forming the midzonal nodules. The infiltrations formed elongations which roughly defined the hepatic lobules. In some areas moderate collections of medium-sized and small lymphocytes were seen in the sinusoids, but in others only an occasional round cell or neutrophile was found. Small foci of hemorrhagic extravasation were occasionally encountered.

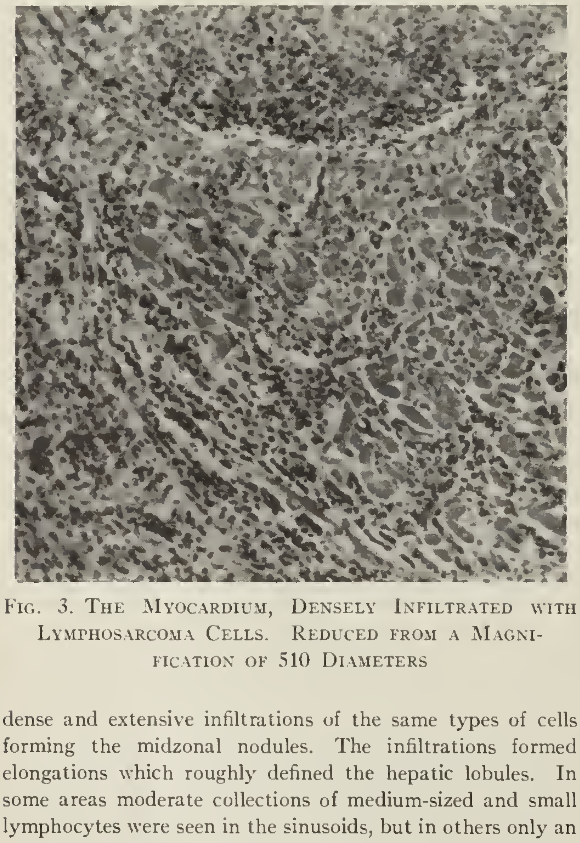


Fig. 3. The Myocardium, Densely Infiltrated with Lymphosarcoma Cells. Reduced from a Magnification of 510 Diameters

The normal architecture of the spleen was greatly suppressed or entirely obliterated. An occasional large, indefinite malpighian body could be identified. The specimen presented a diffuse cellular structure with more or less condensation of the cells around large vessels and along the trabecula. The cells were predominantly medium-sized lymphocytes, here and there intermingled with sprays of small lymphocytes, some lymphoblasts, few monocytes, scattered neutrophiles, and some macrophages occasionally filled with blood pigment. Round cells in mitosis occurred, but not commonly. The stroma was accentuated and frequently collagenous.

In a few areas of one section of lung heavy perivascular mantles or solid parenchymatous nodules of tumor tissue were present. The cells were all of the medium-sized or large lymphocyte type.

COMMENT

The problem presented in this case was that of determination of the primary lesion. At the necropsy it was thought that this was a carcinoma of the head of the pancreas, but the microscopic study quickly dispelled this idea, since the tumor cells belonged to the lymphocytic series and were more infiltrating than nodule forming. The only reasonable conclusion was that a lymph node behind the head of the pancreas took on malignant properties, invaded the pancreas and then disseminated its cells through the blood stream to the liver, kidneys, spleen, heart and lungs. There was very little involvement of the last named organs. The metastatic lesions far surpassed the primary lesion in size. A clinical diagnosis was not made. The greatly enlarged left kidney presented a palpable abdominal mass, the exact nature of which was not determined. Despite the massive invasion of the heart there were no symptoms nor physical signs referable to that organ. Shortly after this case had been studied an almost identical case was observed at the Walter Reed General Hospital by Major Hugh Mahon.

N. B.—The authors desire to thank Dr. J. G. Pasternack of the National Institute of Health for his aid in the histopathologic study of this case.

BIBLIOGRAPHY

Armstrong, H., and Mönckeberg, J. G.: Herzblock, bedingt durch primären Herztumor bei einem 5-jährigen Kind. Deutsche Arch. f. klin. Med., 1911, **102**, 144.

Carnot, P., and Lambling, A.: Volumineux pendulum néoplasique de l'oreillette droite, secondaire à une tumeur dite "sarcomateuse" de l'estomac. Syndrome clinique d'une endocardite maligne lente. Bull. et mém. Soc. méd. d. hôp. de Paris, 1928, **52**, 1773.

Ehrenberg, L.: Zwei Fälle von Tumor im Herzen; ein Beitrag zur Kenntnis der Pathologie und Symptomatologie der Herztumoren. Deutsches Arch. f. klin. Med., 1911, **103**, 293.

Fishberg, A. M.: Auricular Fibrillation and Flutter in

(*Continued on page 262*)

MEDICAL ANNALS

of the

DISTRICT OF COLUMBIA

Editorial Office, 1718 M Street, N. W.

EDITORIAL STAFF

COURSEN B. CONKLIN, A.M., M.D., *Managing Editor*
WALLACE M. YATER, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

APPENDICITIS

PAST AND PRESENT

In one of the earlier papers read before the Medical Society of the District of Columbia on the subject of appendicitis (October 23, 1899*), the late Dr. William Cline Borden, who was then a Captain, Medical Corps, United States Army, and a member of this Society, states:

> "Appendicitis is a disease so protean in its aspect, so insidious in its onset and course, and the prognosis of it is so indefinite and in many cases so undeterminable, that the opinion of surgeons and physicians is still largely undecided as to the best methods of procedure. Gradually, however, it seems that the profession at large is coming to the conclusion that where symptoms of this disease have presented themselves, the only real safe course is the removal of the cause, that is, complete removal of the appendix."

Also, he divides cases into mild and severe, stating further—

> "Cases of mild appendicitis are extremely interesting in that they may, and frequently are, forerunners of more serious type of the disease. In fact the severe types as ordinarily seen are generally the closing chapters in the histories of the cases rather than the entire history, much less the opening chapters, which are seldom seen."

Doctor Borden presents well the views at the time and foretells the present attitude. The disease is still recognized as insidious and protean in its aspect. Attention is called to the large number of diagnostic signs, exceeding 30, mostly eponyms, in two of the latest issues of the Journal, American Medical Association, July 13, 1935, p. 139, with supplementary list in August 24, 1935, p. 619; such names as Rovsing, Aaron, Clado, Ott, Sattler, Cope, Klemm, Gray, Lotheissen, Morris, Murphy and others, representing many nationalities, are associated with tests which their authors at least deem of value. It may be said parenthetically that retention in the mind of the *eponym* necessitates a reversion to use of spontaneous memory. As a consequence in time usually neither the name nor its association affords any useful purpose to the physician or medical student. The various points, such as pain in the abdomen of acute onset, vomiting, fever, leukocytosis, localized abdominal tenderness, abdominal rigidity, particularly in a young male adult, may or may not be present. No one has ever ventured a generally acceptable pathognomonic symptom. The diagnosis is elusive as is evidenced by all that is written concerning signs and diagnostic points. The vast number implies the insufficiency of any one or any group. The theory of early operation manifestly cannot be always applied, because of failure of early diagnosis. Rather paradoxically with the increasing technical skill of surgeons there appears to be a rising death rate from appendicitis. The Bureau of Census has furnished the following vital statistics relative to appendicitis:

YEAR	TOTAL DEATHS	RATE PER 100,000*
1900	2,987	9.7
1910	6,128	11.4
1920	11,702	13.4
1930	18,100	15.3
1932	17,111	14.2
1933	17,717	14.1
1934	18,129	14.3

* The registration area it should be noted was variable up to 1933, when all states became included. Percentage of states included in registration area: 1900, 40.5; 1910, 58.3; 1920, 82.3; 1930, 96.2.

All this despite everything that has been written; the articles on this subject are legion.

---

* Some 13 years after R. H. Fitz, the Shattuck Professor of Pathological Anatomy in Harvard University read his paper, "Perforating Inflammation of the Vermiform Appendix with Special Reference to its Early Diagnosis and Treatment," at the first meeting of the Association of American Physicians on June 18, 1886; discussion by Drs. William Pepper of Philadelphia and E. G. Janeway of New York, considered to mark the beginning of the general clinical recognition of this serious malady.

The instruction given in the Class A medical schools is, we believe, generally complete, but perhaps with some misplaced emphasis. The teaching of this subject is almost entirely by surgeons; refinements of operative technic are stressed. A relatively minor rôle is occupied in that part of the curriculum devoted to internal medicine, i.e., diagnosis.

Dr. Paul S. Putzki, in a recent number of the Medical Annals of the District of Columbia, gives a summary of the appendicitis situation as it appears locally, a far cry from Dr. Borden's paper some 36 years previously in that a complete statistical study is given, but it should be noted very little more is offered in a corrective way. The foregoing is sufficient to give much food for serious thought. Dr. Putzki's figures show a definite rise in mortality in operations after the first 12 hours of onset, conforming to the generally given statistics. The emphasis on early operation of a half century ago maintains a position of importance down to the present. In comment it may be ventured that often, although diagnosis is tentatively made, delay is due to the case being considered "*mild*," i.e., the symptoms not violent enough for action. The Washington figures forcefully stress delay with its death sequence. Even more eloquently speak the figures of Reschke and Stanton obtained from German and American Clinics:

OPERATED ON	CASES	DEATHS	RATE
			per cent
1st day of attack	1,507	20	1.3
2nd day of attack	912	33	3.6
3rd day of attack	663	56	8.9
4th day of attack	356	46	12.9
5th day of attack	442	49	11.6
6th day of attack	346	29	8.4
7th, 8th or 9th day of attack	178	5	2.8
10th day of attack or later	288	7	2.4

They conclude properly from their figures that operation is most hazardous between the third and ninth days, and should be deferred. The "Ochsner management" of absolute gastro-enteric rest is preferable during this period according to the authors.

A rise above 900 per cent in mortality when operation is deferred from the first to the fourth day needs no further comment. It is noteworthy that surgeons addressing surgical groups furnish the larger amount of the present voluminous literature on the subject, although it appears that a pathological anatomist initiated clinical interest. We believe that insufficient stress is laid on the subject of appendicitis, its diagnosis and the attitude toward the consulting surgeon's response concerning operation, at meetings of internists. It may be that a place of greater importance should be given to the physician's responsibility. A single surgical consultation may not discharge full responsibilities. The surgeon should accept the dictum, when in doubt operate, on all early cases, i.e., before the third day. Dr. Putzki's conclusion, paraphrased to read:

> **"Decrease in the mortality rate in acute appendicitis, will come only when the laity (and), the physician *and the surgeon* realize fully the danger of delay and purgation *and the very great risks attendant upon operations from the third to sixth day following the attack."****

might well be generally distributed on a card, designed to occupy space on the desk blotter of the practitioner.

BIBLIOGRAPHY

Borden, W. C.: Four Cases of Appendicitis. Military Surgeon, Supp. to Nat'l. Med. Rev., 1899, **2**, 329.

Fitz, R.: On Perforating Inflammation of the Vermiform Appendix with Special Reference to Its Early Diagnosis and Treatment. New England J. Med., 1935, **213**, 245.

Putzki, P. S.: A Statistical Study of Acute Appendicitis in Washington Hospitals in 1928 and 1933. M. Ann. District of Columbia, 1935, **4**, 225.

Reschke, K.: The Treatment of Appendiceal Peritonitis in the Intermediary and Late Stage. Beitr. z. klin. Chir., 1935, **161**, 64.

Stanton, E. MacD.: Acute Appendicitis. Surg., Gynec. & Obst., 1934, **59**, 738.

THE WASHINGTON SOCIETY OF PATHOLOGISTS

For All Interested in Scientific Medicine

The Washington Society of Pathologists was created in 1927 with the objects (a) to promote interest in the study of pathology in the city of Washington, (b) to provide a means for the interchange of knowledge of this subject, (c) to encourage the demonstration of pathology to the end that clinical interest in this subject may be increased, and (d) to make available to every member of this society the interesting pathological material that obtains in Washington and vicinity. The only qualification for membership is that members shall hold academic degrees and be interested in the study of pathology. Dues are nominal. The membership includes at present practically all of the pathologists in practice in Washington and those in the United States Army, Navy and Public Health Service stationed in Washington, as well as a number of internists and other specialists practicing in the community. Regular meetings are held the first Saturday each month from October to June at 1:30 P. M. at the Army Medical Museum. Past presidents have been Drs. E. Clarence Rice, Walter Freeman, Leslie T. Gager, D. P. Penhallow, R. D. Lillie, Lawrence M. Milstead, H. H. Leffler, and J. G. Pasternack.

---

* Italics mine. Ed.

A new departure in the arrangement of the program is to be instituted this year. The first hour will be devoted to presentations of original work being done by various members and guests. The papers will be simple and will stress practical applications of the work. The second hour will be devoted to presentations of interesting cases by the members with demonstrations of gross and microscopic specimens. Opinions and general discussion will follow.

An interesting program is being arranged:

October 5:
"The Human and Experimental Aspects of Lymphocytic Choriomeningitis, a New Disease in Man." Charles Armstrong, M.D., and R. D. Lillie, M.D. of the National Institute of Health.

November 2:
"Bone Tumors." Charles F. Geschickter, M.D., Johns Hopkins Hospital.
"The Roentgenological Aspects of Bone Tumors." Claude Moore, M.D.

December 7:
"Carcinoma of the Lung."

January 4, 1936:
"Experimental Studies on the Use of Typhoid Vaccine."

All members of the Medical Society of the District of Columbia are extended a cordial invitation to attend the meetings of this society, to become members and to enter into the programs and the discussions. Other information desired may be obtained from Dr. Wallace M. Yater, president, or Major Raymond O. Dart, Curator of the Army Medical Museum, acting secretary.

AMERICAN ASSOCIATION FOR THE STUDY OF NEOPLASTIC DISEASES

The regular fall meeting was held at the Mayflower Hotel, Washington, D. C., on September 5, 6, and 7, 1935. There were 6 scientific sessions which included symposia on lung tumors, carcinoma, sarcoma, with 3 sessions devoted to tumors of miscellaneous types. The large amount of material submitted for the scientific program made it necessary to cancel the proposed Washington Clinical Hospital Sessions. An additional scientific session was provided.

Washington participants in the program presented the pathological details of neoplastic lesions as found in various structures:

"Lesion of Bone." J. W. Lindsay, M.D.
"Lesion of the Buttock." R. W. Baker, M.D., T. A. Groover, M.D., and J. W. Lindsay, M.D.
"Lesion of the Testicle." C. P. Howze, M.D., E. A. Merritt, M.D., and J. W. Lindsay, M.D.
"Lesion of the Testicle." O. B. Hunter, M.D., E. A. Merritt, M.D., and J. W. Lindsay, M.D.
"Lesion of the Skin." J. B. Glenn, M.D., E. A. Merritt, M.D., and J. W. Lindsay, M.D.
"Lesion of the Pelvis." Lester Neuman, M.D.
Dr. Edwin A. Merritt participated in the discussion of the general subject: "Radiation Therapy in Carcinoma of the Rectum."

The present officer and council personnel follow:

J. Shelton Horsley, *President*
Charles F. Geschickter, *Vice President*
Janvier W. Lindsay, *Treasurer*
Eugene R. Whitmore, *Secretary*
Council: M. M. Copeland, Charles F. Geschickter, J. Shelton Horsley, Louisa E. Keasby, Janvier W. Lindsay, Roscoe W. Teahan, and Eugene R. Whitmore.

TESTIMONIAL FOR DR. BLOODGOOD

On the evening of September 6, 1935, there was a testimonial banquet to Dr. Joseph Colt Bloodgood. Dr. J. Shelton Horsley, Richmond, Virginia, presided and acted as toastmaster. The speakers were: Drs. Janvier W. Lindsay, representing the President of the Medical Society of the District of Columbia; C. C. Little, Bar Harbor, Maine; Thomas A. Groover, Washington; John M. T. Finney, Baltimore; A. C. Broders, Richmond; Huntington Williams, Baltimore. Dr. Bloodgood responded in a short address.

OCTOBER MEETINGS

1718 M Street

Wednesday, October 2:

Business meeting, with reports of committees: Executive, Medical Economics, Public Health, Public Information, etc., on their summer activities.

Wednesday, October 9:

"Poliomyelitis."

Essayists: Joseph S. Wall, M.D., Oscar B. Hunter, M.D., John A. Talbot, M.D.

Wednesday, October 16:

1. "The Emblem of Medicine." A. B. Bennett, M.D.
2. "Atypical Coronary Thrombosis." Leslie T. Gager, M.D.
3. "Lobar Pneumonia in the District of Columbia." Harry F. Dowling, M.D.

Wednesday, October 23:

"The Science of Seeing." Dr. Matthew A. Luckiesh, Director of General Electric Experimental Laboratory.

Dr. George C. Ruhland will introduce the speaker. The Electric Institute of Washington will coöperate in giving an interesting demonstration in elaboration of Dr. Luckiesh's talk.

Friday, October 25: Section on Internal Medicine.

1. "Sickle Cell Anemia. A New Cause of Cor Pulmonale." Wallace M. Yater, M.D.
2. "Report of Two Cases Demonstrating the Possibility of Restitution of Anatomical Integrity in Cardiovascular Syphilis." John C. Reisinger, M.D.

Wednesday, October 30:

1. "Neonatal Pneumonia: A Sporadic Outbreak." (Epidemiological Features, Citation of Clinical and Pathological Reports). C. B. Conklin, M.D.
2. "Chronic Otitis Media." P. S. Constantinople, M.D.

DAVIDSON LECTURE, 1935

Wednesday evening, November 13

Dr. George C. Ruhland, the Health Officer of the District of Columbia, who was unanimously chosen by the Society to deliver this year's lecture, has announced that the title will be "The Newer Public Health." It should be noted that the date, through force of circumstances, has been postponed one month; the regularly stated time for the giving of the Davidson Lecture is the second Wednesday of October in odd-numbered years. To familiarize particularly the newer portion of our membership with the details concerning this lectureship we print the following:

> "Whereas, The Medical Society of the District of Columbia will be perpetually indebted to Dr. Edward Young Davidson for initiating and guiding to a successful completion the project of building and owning its own home, a project to which may be directly traced the present increasing usefulness of the Society to its members and humanity; therefore be it
>
> Resolved, That the Medical Society of the District of Columbia, being desirous of suitably expressing its deep sense of grateful appreciation of the priceless services rendered it by Dr. Edward Young Davidson in obtaining its present building and being no less interested in perpetuating this striking example of disinterested service and true loyalty from one of its members, hereby appropriates the sum of three thousand dollars ($3,000), or as much thereof as may be necessary, to establish and endow in perpetuity the Davidson Lecture. This lecture will be given biennially by a physician or other scientist who shall be nominated one year in advance by the Executive Committee. For his services he shall receive an honorarium (equal to the income derived from investment in Government Bonds)."

It is assured that there will be a large attendance on this evening. The suggestion is offered that this date be marked now on your own calendar and that you extend an invitation to your friends who would be interested. There will be the usual complimentary buffet supper with the usual fine social features following the scientific presentation.

WOMAN'S AUXILIARY

Fall meetings will begin Wednesday morning at 11 A.M., in the Medical Society Building and continue on the first Wednesday of each month. Newly announced committee chairmen are:

Press and Publicity, Mrs. Virgil B. Jackson
Program, Mrs. Louis B. Castell
Public Relations, Mrs. Charles W. Hyde

RADIO BROADCASTS*

SEPTEMBER

"The Old Family Doctor" Series

September 3: "Getting the Child Ready for School."†
September 10: "Obesity or Overweight."
September 17: "Vaccination Against Smallpox."
September 24: "Preventive Medicine."

ARMY MEDICAL CENTER

MONTHLY MEETINGS, OFFICERS OF MEDICAL DEPARTMENT

On the third Monday evening, October to May, meetings to which the members of the medical profession of Washington are invited will be continued this year, according to circular letter #28, received from the Surgeon General's Office, United States Army. The program generally consists of (1) a talk, an address, a demonstration, a clinic, or the presentation of a paper, or a combination of two or more of these; (2) a discussion; (3) a social hour during which refreshments will be served. A nominal charge is made for refreshments. The Society's office each month, through the courtesy of the Surgeon General is supplied with programs of the meetings.

ASSOCIATION OF MILITARY SURGEONS

New York City, October 3, 4, and 5

The 43d annual convention will be held at the Waldorf-Astoria Hotel. Interesting features in the program will include papers and reports of outstanding members of the profession from military and civilian ranks. In addition there will be an interesting technical exhibit participated in by various Governmental agencies and hospitals. The Medical and Hospital Service, Veterans' Administration, will have on view an exhibit of clinical and postmortem studies of heart disease, including electrocardiograms and roentgenograms of the more important diseases and abnormalities of the heart and larger blood vessels. Physicians who are in the Reserve Corps, United States Army, should know that a total of 21 hours may be added to their credit by attending the meetings on the 3 days. Among the social events scheduled is a trip to West Point with an opportunity to view the many items of historic interest.

Through the secretary, Major General H. L. Gilchrist, members of the Medical Society of the District of Columbia are cordially extended an invitation to attend the scientific sessions. There is no registration fee.

GALLINGER MUNICIPAL HOSPITAL

NEW ISOLATION PAVILION IN OPERATION

Wards Open to Local Ethical Licensed Practitioners

At a total cost of approximately $500,000 Washington now has facilities, for the caring of patients afflicted with communicable diseases, quite different from the previous mode of hospitalization in inadequate structures. The wards for scarlet fever, diphtheria, measles and diseases of miscellaneous types are situated in wings which radiate out from a central structure. The equipment assures not only special opportunities for care but special facilities for research in disease prevention. The total cost per day for patients under care of their private doctor will be approximately $4.00. On September 3, 1935, at formal dedication ceremonies the following program was presented:

H. J. Crosson, M.D., of the Board of Public Welfare, *presiding*.
Invocation, The Reverend G. Freeland Peter, Canon of the Washington Cathedral.
Some Remarks Concerning Communicable Diseases, George C. Ruhland, M.D., Health Officer, District of Columbia.
Greetings from the Medical Profession, C. B. Conklin, M.D., Secretary, The Medical Society of the District of Columbia.
Dedication Address, Hugh S. Cumming, Surgeon General, United States Public Health Service.
Benediction, The Reverend Arthur O'Leary, President Georgetown University.

---

* Arranged by the Committee on Public Information, Dr. H. P. Ramsey, chairman; Dr. R. Lyman Sexton, subchairman.

† By Dr. J. A. Murphy, Chief Medical and Sanitary Inspector, Public Schools, D. C.

MEDICAL SCHOOL NEWS

Georgetown University School of Medicine

*Biographical Data of Appointees to Faculty**

Vincent J. Dardinski, A.B., M.A., M.D., who has been promoted to professor of anatomy and director of the Department of Anatomy, was formerly associate professor of pathology and parasitology at Georgetown University School of Medicine, the appointment dating from 1931. His A.B. and M.A. degrees were earned with honors at Catholic University. He has taught anatomy to graduate students in the summer school of his alma mater for many years. Throughout his medical schooling at Georgetown University he was an honor student. His interneship was served at Gallinger Municipal and Saint Elizabeth's Hospitals in the District of Columbia. Following this service he was awarded a fellowship at the Mayo Clinic, Rochester, Minn. Before his association with the Department of Pathology, Dr. Dardinski served as associate director of the South Bend Laboratories in Indiana. Readers of medical journals are well acquainted with Dr. Dardinski's work in the fields of anatomy and pathology. He is also the author of various text-books.

Reginald A. Cutting, A.B., M.A., Ph..D, M.D., C.M., who has been appointed professor of physiology and director of the Department of Physiology, procured his A.B., M.A., and Ph.D. degrees from Harvard University and later attained the degrees of doctor of medicine and master in surgery from McGill University. At various times he has been connected with the Department of Physiology of the schools of medicine of Tufts, George Washington and Illinois Universities. From 1923 to 1926 Dr. Cutting was an assistant surgeon in the United States Navy and instructor in the Naval Medical School and Hospital. After that period he served as an assistant professor at Tulane University and professor at Louisiana State Medical Center. Dr. Cutting was associated with the Department of Physiology at Georgetown University during the past year. He is particularly well known for his writing on physiology and surgery in the professional periodicals. He is the author of a text-book entitled "Principles of Preoperative and Postoperative Treatment," which wasissued in 1932.

George J. Brilmyer, M.D., associate professor of pathology and parasitology, was formerly connected with Georgetown University and George Washington University Schools of Medicine and the Biology Department of Catholic University.

Harold V. Connerty, M.D., newly appointed assistant professor of pathology and parasitology, was for many years resident pathologist at Gallinger Municipal Hospital.

LOUIS MACKALL MEDICAL SOCIETY

October 14: Ambassador Hotel.

1. "Headache." Hill Carter, M.D.
2. "Per-Oral Endoscopy." (Motion pictures) R. W. Wilkinson, M.D.

The present officers include:

Howard H. Strine, Jr., *President*
Richard W. Wilkinson, *Vice President*
R. Lomax Wells, *Secretary-Treasurer*

AMERICAN RED CROSS

Annual Roll Call

September 16–October 19

Headquarters, 1418 H Street; Telephone NAtional 8605

An opportunity is again presented on the above dates to every citizen of the District of Columbia to add their name to the Annual Roll Call. The American Red Cross needs no eulogizing, especially to the members of the medical profession. A telephone call will make available any information or supplies desired. All enrollments should be mailed or delivered to Mrs. John A. Johnston, Director of Roll Call, at the above address. Membership cards and buttons will be supplied all who enroll. The Medical Society of the District of Columbia has annually participated in this most worthy cause and it is assumed that the 1935 campaign will bring most satisfactory results.

MASSIVE LYMPHOSARCOMATOUS INVASION OF THE HEART

(*Continued from page 256*)

Metastatic Growths of the Right Auricle. Am. J. M. Sc., 1930, 180, 629.

Grawitz: Lymphosarcoma thymicum, ins Myokard eingedrungen. Deutsche med. Wchnschr., 1911, **37**, 2357.

Lloyd, P. C.: Heart Block Due to Primary Lymphangioendothelioma of Atrio-ventricular Node. Bull. Johns Hopkins Hosp., 1929, **44**, 149.

Morison, quoted by Windholz.

Napp, O.: Ueber sekundäre Herzgeschwülste. Ztschr. f. Krebsforsch., 1905, **3**, 282.

Rist, E., and Rolland, J.: Un cas d'endocardite végétante épithéliomateuse secondaire avec embolie pulmonaire. Ann. de méd., 1923, **13**, 538.

Rösler, O. A.: Vier seltenere Herzbefunde. Ein Beitrag zur Herzdiagnostik. Zentralbl. f. Herz- u. Gefässkrankh. 1924, **16**, 261.

Widal, F., and Abrami, P.: Cystodiagnostic du cancer centris nerveux présence de cellules neoplastiques dans le liquide céphalo-rachidien-endocardite végétante cancereuse. Bull. et mém. Soc. méd. d. hôp. de Paris, 1908, **25**, 335.

Windholz, F.: Über Thromben und Geschwülste des Herzens. Virchows Arch. f. path. Anat., 1929, **273**, 331.

Yater, W. M.: Tumors of Heart and Pericardium; Pathology, Symptomatology, and Report of Nine Cases. Arch. Int. Med., 1931, **48**, 627.

---

* See M. Ann. District of Columbia, 1935, **8**, 228, for complete list of recent changes in Faculty.

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV OCTOBER, 1935 NUMBER 10

THE MAJOR IMPORTANCE OF MINOR INFECTIONS

PHILIP A. CAULFIELD, M.D.
Associate in Surgery, Georgetown University School of Medicine

The ever increasing number of industrial accidents each year calls upon the doctor to treat all types of wounds and injuries arising from these accidents. By far the greater number of these wounds fall into the category of Minor Surgery and are treated, not by the specialist, but by the general practitioner. It is important, therefore, that all doctors have a thorough knowledge of the best methods for treating these wounds. He should further know how to care for any complications that may arise in the form of infection, and it is these infections and other minor surgical infections that I wish to discuss.

For the sake of clarity, I shall consider these infections under the following groups: (1) Wounds in general, (2) infections about the hand, (3) lymphangitis and lymphadenitis, (4) furuncles and carbuncles, and (5) erysipelas.

WOUNDS IN GENERAL

Every accidental wound should be considered as a potential reservoir of infection. However, if these wounds are properly treated most of them will heal without any evidence of infection. The greatest danger of infection in wounds is not so much from the mechanical force producing them as from the hands and instruments of the doctor treating them, since these are more likely to be contaminated with virulent organisms. Again, the mechanical force producing the wound enters it but once, whereas the hands and instruments enter it many times. This entrance usually takes place after the flow of blood has stopped, and infection is well known to be harbored better in clotted blood than in freely flowing blood. Therefore, before an attempt is made to repair any wound, all instruments to be used should be carefully sterilized and the hands carefully washed, the same as in any major surgical procedure, for it is far better for a wound to heal without any attempt at mechanical repair if it remains uninfected, than for a repair to be done and infection to be thereby carried into the wound. The following procedure should be strictly adhered to if infection of accidental wounds is to be prevented: (1) All bleeding should be stopped, the wound flushed with soapy water and its edges washed and shaved, (2) all loose and devitalized tissue should be removed, (3) all foreign bodies should be removed, (4) all cavities and recesses and excavations should be opened and the repair should be such that these are obliterated. The wound should then be flushed with 95 per cent alcohol, and if badly contaminated, it should be first cauterized with pure phenol. All accidental wounds should be drained and the drain allowed to remain in place no longer than is necessary to remove serum or liquified fat. Forty-eight hours is usually time enough to accomplish this unless infection occurs, and then the drain should remain in the wound until all pus has been removed.

No wound on the surface of the body or potentially infected wound should ever be sutured by a continuous suture. All sutures should be interrupted, since a continuous suture inhibits the flow of blood to the wound which is so necessary for the prevention of infection and the rapid repair of living tissue, and also because a continuous suture prevents free drainage. Another reason why the continuous suture is inadvisable in the repair of wounds on the surface of the body is that if the wound does become infected the entire suture must necessarily be removed and, therefore, will be followed by a wide gaping of the wound edges. Such is not the case of interrupted sutures in infected wounds. One or two of these can be removed and drainage inaugurated, and the remaining portion of the wound will be held together by the other sutures. For all intents and purposes, it is best to let the wound remain open without a dressing unless such a procedure is impractical. Dressings do not prevent infection and are used merely to absorb serum or blood or for an esthetic reason—to cover an unsightly scar. Most patients will object to this procedure, but from a practical standpoint—and this is particularly true in children—a wound uncovered can be washed and bathed with soap and water, and the possibility of infection being rubbed into the wound by a contaminated dressing is greatly reduced.

Infections About the Hand

Of all the members of the body, the hand is by far the most frequently involved in accidents. This is because of its peculiar function. These infections of the hand are most serious and I am afraid that many times we fail to give them the consideration that we should. However, my work in the surgical clinics of various hospitals during the past 6 years has taught me to handle these injuries with a great deal of reverence. Kanavel many years ago realized their importance and published a classical work dealing with infections of the hand, a book which has since been revised 5 times. I will consider these infections under the following headings: Paronychia, Felon, Acute Tenosynovitis and Space Infections.

Paronychia. Commonly known as a "run around." The removal of "hang nails" and manicuring of the nails are largely responsible for this type of infection. The cuticle is broken, and the organisms lodge in the recesses of the skin overhanging the nail. The typical paronychia starts as a red, hot, painful area along one edge of the nail 3 or 4 days after the initial injury. The infection is apt to spread, however, around the base of the nail involving the entire cuticle. The swelling usually involves the entire distal phalanx of the finger causing it to throb, but point tenderness is most marked over the cuticle. It is best not to make any attempt at incision during this initial stage of inflammation but to advise hot soaks until a small abscess forms close to the edge of the nail, giving the nail a greenish yellow discoloration. At this time the dead overlying skin can be removed and the abscess aborted without resorting to anesthesia. If the pus has worked its way beneath the nail the nail will be elevated and any loose portion should be removed. Sometimes it is necessary to remove the entire nail. This is best done with sharp scissors. Anesthesia is not needed. The infection will subside in 3 or 4 days and complete healing will eventually follow, although a complete new nail will not be grown in less than 3 or 4 months.

Felon. Because of the peculiar anatomical structure of the distal phalanx of the finger, infected wounds over the anterior pad are very apt to be followed by osteomyelitis of the bony phalanx. The reason for this can be briefly described. The periosteum of the distal phalanx is directly connected to the skin by small fascial bands, and infection in the skin works its way along these bands to the periosteum. The subsequent development of osteomyelitis is further enhanced by the fact that the nutrient artery to the distal phalanx only supplies the proximal third of the bone, the distal two thirds being supplied directly from the surrounding soft tissue. Therefore, edema occurring in the fat pad causes thrombosis and mechanical blocking of these vessels and naturally lowers the resistance of the distal end of the bone. All that is required for the treatment of this condition is adequate drainage. An incision should be made along the lateral margins of the finger, since a median longitudinal incision is apt to be followed by a troublesome scar. Without a doubt the so-called fishmouth incision is attended with the best results. This incision makes a flap of the anterior pad down to the bone and allows for free drainage and the escape of sequestrated bone. A small piece of rubber tissue should be placed between the flaps for 3 or 4 days. The use of moist dressings and adequate splinting are the only after treatment necessary. A word of warning at this point may be timely. Unless the infection has spread to the middle phalanx, one should hesitate before deciding to remove the entire distal bone, because this bone regenerates very rapidly following the most severe infections, and even if it is entirely involved it will work out if the skin incision is adequate.

Acute Tenosynovitis. This is the most serious form of infection in the hand, both because of its severity and because of the disability which if often produces. The infective agent, which in serious cases is usually streptococcus, is generally carried in to the tendon sheath on the flexor surface by a pin, a needle or some other small object. The most dangerous anatomical site for these punctured wounds is the proximal flexion creases of the finger, for it is here that the tendons are most superficial. Suppuration does not immediately distend the entire sheath, so that a timely incision may prevent its spreading into the palm of the hand. Excruciating pain, tenseness, tenderness over the involved tendon which is held in moderate flexion and pain on motion of the finger following a slight wound in the above-stated region should lead to the diagnosis of a tendon-sheath infection. Many times the symptoms of tenosynovitis may not be sufficiently distinct to enable one to say positively whether pus is within the tendon sheath or merely subcutaneous. This distinction is of less importance, since in either case an incision is necessary for drainage and at the time of the incision examination of the tendon sheath can be made, which if found to be involved, can be opened widely. Incision into the tendon sheaths should always be made along the lateral margins of the finger between the creases if possible and never on the palmar surface. One may pass an artery clamp across the digit from one lateral incision to the other and drain by rubber tissue or by a rubber band. Postoperative treatment should consist of massive wet dressings or hot hand soaks. The drains can be removed on the third or fourth day and the patient encouraged to move the involved finger. If there is extensive involvement of the sheath or sloughing of the tendon one should warn his patient that his injury is liable to be followed by considerable loss of function.

Space Infections of the Hand. There are 4 spaces in the hand and 2 in the wrist that must be considered. The source of infection of these is either a spreading infection from the fingers, usually acute tenosynovitis, or a primary wound on the palm of the hand. Swelling is usually most marked not in the palm but on the dorsum due to the redundancy of the skin in this region. However, on careful examination point tenderness over the infected space will soon determine the location of the pus. The hypothenar space is only a potential space and seldom becomes involved; however, if infection does separate the muscles of the hypothenar eminence, a small incision directly over the eminence will be sufficient to abort the pus. If the infection is located in the thenar space the pathognomonic sign is ballooning of the thumb and marked swelling of the digital fold between the thumb and index finger. Drainage is best secured by a longitudinal incision on the dorsal surface of this fold, inserting a clamp through the incision into the thenar space beneath the thenar eminence and allowing a piece of rubber tissue to remain in place.

The mid-palmar space lies between the deep palmar fascia and the interosseous membrane of the 4 metacarpal bones. It is most often involved by infection spreading from the fingers by way of the tendon sheaths. However, it can be infected by an injury extending directly into it. The pathognomonic signs are obliteration of the normal palmar concavity, pain on direct pressure over the palmar space and marked swelling of the entire hand, most pronounced on the dorsum, as the firmness of the palmar fascia limits the amount of swelling on the palmar surface. Drainage of this space should be made through the lumbrical spaces between the third and fourth or the fourth and fifth fingers. A clamp should be inserted through the wound deep to the palmar aponeurosis and a drain inserted. The reason an incision is made in this region is because of less likelihood to injury of the important structures of the hand. The postoperative treatment should consist of splinting of the hand with the fingers in full extension to prevent flexion deformities. Massive wet dressings should be employed or periodic soaking of the hand in hot magnesium sulphate solution.

Because of the peculiar arrangement of the mucous sheaths of the hand, infection occurring in the little finger is apt to pass along the course of the mucous sheath of this finger and localize in the ulnar bursae beneath the annular ligament. This extension is sometimes difficult to diagnose. The valuable sign, however, is the presence of exquisite tenderness just proximal to the distal flexion crease at the wrist. Swelling is most marked on the dorsum of the hand, and a general fullness in the palm is found although the palmar concavity is still present. The edema and swelling are of such a character that fluctuation can seldom be elicited, and with the above signs and symptoms one should never wait until fluctuation is present, but should operate immediately, the incision being made between the tendons of the flexor carpi ulnaris and the flexor digitorum sublimis muscles. This will open directly into the ulnar bursae. Because of the close proximity of the radial bursae to the ulnar bursae in the wrist this space often becomes infected by direct extension from the ulnar bursae and this is the reason why infections in the little finger sometimes involve the thumb. However, the radial bursae can also be involved by infection originating in the thumb. The signs and symptoms of infection of these bursae are practically the same as ulnar bursitis except that the tenderness and pain are most marked along the radial side of the wrist and over the thenar eminence. An incision made directly over the proximal portion of the thenar eminence will open into this space. Drains should be inserted and the wound treated as previously stated for other infections about the hand.

Infections on the Dorsum of the Hand. These are entirely different from infections on the palmar surface. The tissues swell inordinately owing to the looseness of the skin. There is very little tendency to extension, and spontaneous localization is the rule. Adequate incision directly over the fluctuating mass will usually abort the pus.

LYMPHANGITIS AND LYMPHADENITIS

Lymphangitis. Inflammation of the lymphatic vessels is due to the entrance of bacteria through a wound or an abrasion of the skin which can be so minute as to escape detection. Some of the most serious forms of lymphangitis are due to puncture of a finger at an autopsy or an operation. The streptococcus is usually the offending organism.

The inflammation commences in the lymphatic reticulum of the skin, and passes rapidly up the collecting vessels to the nearest lymphatic glands. Some idea of the rapidity with which infection may pass along the lymphatics may be had from the work of Hudack and McMasters. Using a patent blue dye they noted that 5 minutes after an intradermal injection on the volar surface of the forearm the dye had spread 15 centimeters from the site of the original injection and after 8 minutes had spread to the axillary lymph glands.

This evidence of the rapidity with which infection may spread into the general circulation warns us that active therapy should be started early. Usually the appearance of these red streaks up an arm or leg is presumptive evidence that pus has not yet formed. This is an important point, for most fatalities following minor infections are due to untimely probing or incision of a wound the minute lymphangitis appears. The best form of therapy at this time is to incorporate the injured part in massive dressings saturated with hot magnesium sulphate solution and institute general eliminative therapy such as hot drinks of a goodly quantity of fluid. An incision of any kind should not be made until definite evidence of localization of pus has occurred. Many times an incision is not necessary and the condition undergoes resolution without the formation of pus. If an incision is needed it should be just large enough to abort the pus and no larger, for cutting into healthy tissue will often tend to spread the infection.

Lymphadenitis. The lymphatic glands being one of the main lines of defense of infection from without, it is but natural that they should be the seat of inflammation. All degrees of inflammation may be encountered depending upon the virulence of the infecting bacteria. Two main forms may be encountered, the acute and the chronic. The chronic form is usually due to some wasting disease such as tuberculosis and syphilis and does not come under the scope of this paper. The acute lymphadenitis is usually due to infections of the skin or mucous membrane. The glands become swollen, tender and painful following lymphangitis. Sometimes it is possible to trace the course of the infection from the primary focus along the inflamed lymph vessels. Often the infection appears to pass directly from the initial lesions to the glands leaving the intervening area unaffected. This is usually the case in the more benign strains of infecting organisms. No matter how acute the inflammation may be, it usually ends in resolution if the same form of therapy as instituted for lymphangitis is employed. Should the infection be virulent, especially if it is due to streptococcus, suppuration may occur. With definite evidence of the formation of pus an incision should be made through the point of greatest fluctuation. Here again the incision should be small, just sufficient to drain the pus. Rubber tissue should be used as a drain, since gauze has a tendency to dry and plug the wound. One should not be surprised if long after the primary infection has subsided the glands remain swollen and indurated, for it sometimes takes 3 or 4 weeks before complete resolution occurs and they regain their normal size.

Furuncles and Carbuncles

Furuncles. Best results are gained when dry therapy is resorted to for this condition, as moisture tends to macerate the surrounding skin and allows the Staphylococcus to penetrate and form another furuncle. Absolute rest, dryness, cleanliness and heat are essential in the preliminary stages. In 3 or 4 days a greenish white cap develops. This can then be lifted off without pain or discomfort and the pus evacuates itself. If another cap forms this too should be lifted off. Complete resolution usually occurs in about 1 week. There is no systemic treatment which will prevent recurrence of a crop of boils. Reduction of the carbohydrate intake and the use of autogenous vaccines has met with favorable approval by many observers. Irradiation with X-ray is an excellent form of therapy and causes rapid resolution, which favors the non-spreading of the organisms to the surrounding skin. Bacteriophages have been used with good results by some physicians.

Carbuncles. This condition is a series of communicating abscesses which discharge by separate openings on the surface. It is not a group of boils. Treatment here is general as well as local, the general treatment being supportive and eliminative. The local treatment consists in aborting the pus. Many if seen early undergo rapid resolution if irradiated with X-ray, with a minimal loss of substance of the skin. In the later stages X-ray is of little benefit, and an incision has to be made. This is usually crucial, and the skin flaps are dissected away from the deep fascia as far back as the skin is undermined by pus. Excision of skin should never be done, since it is impossible to tell at the time of incision what skin is viable and what skin is necrotic. Loss of substance of skin has been greatly reduced by adherring to this rule. As in furuncles, medicaments to aid the body defense powers have not proven their worth. Bacteriophage, however, is very popular and in time may come to be generally used.

Erysipelas

This condition can no longer be regarded as an entity, since it is a form of streptococcus cellulitis and not a special type of infection as to origin, symptoms, course or outcome. There is no more need of isolating such a case than there is of isolating any other case of cellulitis. It usually lasts from 7 to 10 days, running as set a course as measles or scarlet fever, and its rash is just as easily controlled as these. Cauterants such as iodine and carbolic acid are of no more benefit and often prove harmful by devitalizing otherwise healthy skin.

The treatment is both local and general as in any other type of streptococcus infection. General treatment is supportive. Except in facial erysipelas, the original focus of infection should be located and if it fluctuates, should be opened and drained. In facial erysipelas, discretion is the better part of valor and the original lesion should not be touched—rather let it point and rupture spontaneously. The blebs should not be opened until the third or fourth day, and care should be taken not to contaminate the skin by the serum contained in these blebs. The entire area should be covered with gauze soaked in hot magnesium sulphate solution. When the stage of desquamation is reached, itching and irritation may be relieved by dusting with zinc stearate. Erysipelas occurring at a mucocutaneous junction is extremely dangerous to life, and great care and judgment is needed in handling these cases.

Erysipelas antitoxin if administered early is of undoubted value, particularly in facial erysipelas. The doses should be 30 or 40 cc. in 100 cc. of normal saline administered intravenously. The mortality from erysipelas has been greatly reduced since the routine use of the antitoxin has been inaugurated. Transfusions of whole blood have also proven an effective weapon in combating the ravages of this disease.

Comment

No part of the body is exempt from accidents or infections, and it is because of the general interest to all that I have chosen to discuss these subjects. The short experience that I have had since leaving school has taught me that many minor surgical conditions become major surgical problems because of neglect or ignorance on the part of the physician who first treated the injury. The same care in diagnosis, handling of tissue and treatment should be exercised in these conditions as in major surgery. A good knowledge of what can happen to a life or a member of the body following a pin prick is essential in the education of all physicians.

LYMPHOGRANULOMA INGUINALE: A CAUSE OF RECTAL STRICTURE*

William Berry Marbury, M.D.

Associate Professor of Surgery, George Washington University School of Medicine

Lymphogranuloma inguinale has been termed the "fourth venereal disease" because it is thought to be transmitted by sexual intercourse. In the sixteenth century López de Gómara wrote concerning the armies in the New World: "The inhabitants of the 'Isla Espanola' all suffer from 'Bubas,' and as the Spaniards held sexual intercourse with Indian women, very soon they swelled with 'Bubas,' a very contagious disease that produces intense pain. Ailing and not curing many of them returned to Spain." Coutts has noted many references to lymphogranuloma in the writings dealing with the discoveries of the New World. He states: "From the descriptions of the writers of the fifteenth and sixteenth centuries of the different diseases transmitted to Europeans through sexual intercourse with Indian women of the New World, we arrive at the definite conclusion that not only did they acquire syphilis but also yaws, leishmaniosis, soft chancre, as well as lymphogranulomatosis. The natural confusion arising at the time is easily explained, owing to the total absence of bacteriological knowledge. Nevertheless, we find such marvelous and detailed descriptions of symptoms, that with our present knowledge of these diseases differentiation is easy."

---

* Read before the Annual Scientific Assembly of the Society, May 2, 1935.

Tropical or climatic bubo was described by Wendt in 1816, but it was not until 1913 that Durand, Nicolas and Favre recognized lymphogranuloma as a clinical entity. Frei, in 1925, made a valuable contribution to the recognition of the disease when he developed a specific antigen which is now being used for both diagnostic and therapeutic purposes. The condition has only recently become prominent in the medical literature of America. In the recent text-books on urology, gynecology and proctology to which I have had access, I have found but scanty reference to it. The first cases of lymphogranuloma inguinale to be recorded in an American journal were reported in 1924 by Dr. George H. Hansmann, Associate Professor of Pathology of Georgetown University, under the title, "Non-Tuberculous Granulomatous Lymphadenitis." In the study of his 4 cases, he concluded that he was dealing with a new condition. I am indebted to Dr. Hansmann for very kindly lending me Hellerström's monumental work, "A Contribution to the Knowledge of Lymphogranuloma Inguinale."

ETIOLOGY

That lymphogranulomatosis is due to a filterable virus and that it is contracted by sexual intercourse, there is considerable evidence but no definite proof. Repeated bacteriological examination of material taken from what are apparently initial lesions as well as from definite secondary manifestations have yielded no positive results. Freund and Reis and Meyer, Rosenfeld and Anders have, however, been able to reproduce the disease experimentally in guinea pigs and rabbits. Levaditi, Ravaut, Lépine and Schoen and Anders have observed typical macroscopic and microscopic changes in the lymph nodes and the brains of animals experimentally infected with the virus. Coutts, Herrera and Perroni have produced enlargements in inguinal and lumbar lymph nodes of guinea pigs by the subcutaneous injection of material taken from lymphogranulomatosis in human subjects. These observers have also obtained a positive Frei test in a majority of the animals which had received the injections.

The mode by which the virus is transmitted is equally uncertain, although it is generally supposed to be by sexual intercourse, normal or abnormal. Initial lesions have been observed on the external genital organs of the male, usually from 6 to 30 days after intercourse. Initial lesions have not been demonstrated in the female. It should be remembered, however, that chancre and chancroid are also more frequently demonstrated in the male. This has been explained on the grounds that the female genital tract can harbor pathological organisms in a latent state (probably due to variations in pH concentration), which when transferred to optional conditions recover their virulence and cause disease. Coutts, writing from Santiago, Chile, contends that lymphogranulomatosis is of buccal origin, and he cites numerous cases of his own and other authors to support his contention. He states: "We have sufficient evidence to sustain this theory and also to declare that the increase in the number of cases of this disease is due, in our opinion, to the greater frequency with which coitus buccalis and cunnilinguism is practiced at present, owing to circumstances directly related to the restrictions in childbirth, fear of fecundation or venereal contagion."

SYMPTOMS AND DIAGNOSIS

As our knowledge of lymphogranuloma has accumulated it has become more apparent that several seemingly unassociated diseases are due to the same infectious virus; that is, inguinal adenitis (mostly in the male), elephantiasis of the scrotum, elephantiasis of the vulva (esthiomene) and rectal stricture. The disease, therefore, presents varying clinical pictures. In the male the lymph glands in the inguinal and subinguinal regions are most commonly affected. At times a history of an initial sore on the glans penis or prepuce can be elicited, but usually not. The glandular enlargement may be unilateral or bilateral. In from 20 to 30 per cent of the cases the involved glands regress without the formation of pus. The enlarged glands may slowly break down and form multiple sinuses which may drain for months. If the suppuration is complete or if the glands are removed surgically, elephantiasis of the scrotum or penis is a possible sequela. The condition may gradually improve and the patient be left with no recognizable disability, or it may progress to the malignant type which results in a high mortality. Generalized adenopathy involving mesenteric and mediastinal lymph nodes and even the spleen and other internal organs has been described. This condition is rare and is seen only in an occasional case of the malignant type. Constitutional symptoms seem to accompany lymphogranuloma more frequently in the male than in the female. There is often malaise and fever. The temperature varies between 102°F. and 104°F., and often remains elevated for several weeks, during which time successive glands become involved. It is doubtful if a reinoculation is possible, and this supposition is strengthened by the fact that the Frei test remains positive for many years.

In the female the disease runs a different course, and generally the first and only symptom complained of is constipation alternating with diarrhea. Examination of the rectum may show granulomatous areas in the perianal region with multiple fistulae leading into the rectum. This finding is not as constant, however, as is the anal stricture which is found in the anorectal region within easy reach of the finger. Ruge found the stricture within from 3 to 6 centimeters of the anus in 37 out of 63 cases. Involvement of the sigmoid has been reported. It occurred in 1 instance among the 12 cases of the present series. Patients with rectal stricture suffer greatly and often develop almost complete obstruction before they appear for medical aid. The condition is much more frequent in the colored than in the white race. Elephantiasis of the vulva in the female, which corresponds to elephantiasis of the scrotum in the male, occurs in a certain number of cases in which the afferent lymph vessels have been blocked secondarily to an involvement of the glands they supply. Jersild thought that there was a definite relation between elephantiasis of the vulva (esthiomene) and rectal stricture, and he reported that he had found the 2 conditions associated in from 60 to 70 per cent of his cases. He used the term "elephantiasis genito-ano-rectale," which has been called the "Jersild syndrome."

Barthels and Biberstein have made a study of the course of the lymphatics in the male and the female and have shown anatomically that an infection of the external genitals of the male would result in an involvement of the inguinal glands, whereas in the female an infection of the genitals would not normally affect the inguinal glands but would instead involve the anorectal gland of Garota. This anatomical difference in the pathways of the lymphatics in the 2 sexes gives a very reasonable explanation of the fact that the same disease can give such varied clinical pictures.

A differential diagnosis of lymphogranuloma inguinale from syphilis, gonorrhea, tuberculosis, actinomycosis and chancroids is necessary. All of these infections may involve the lymphatic glands and histologically may be difficult to differentiate, especially if the glands are broken down. Syphilis and gonorrhea have each been thought at different times and by different authors to be the principal cause of stricture of the rectum. Schede, in 1895, reviewed 18,780 cases of syphilis and found among them only 16 cases of stricture. Among 17,810 men who had been treated for syphilis no strictures were observed. The Wassermann reaction gives a means of excluding syphilis, but it must be remembered that 2 or more veneral diseases can exist at the same time and that it is possible that lymphogranulomatosis will give a partial reaction in the early stages. After the assumption that rectal strictures were caused by syphilis had been more or less disproved, they were attributed by many workers to a secondary gonorrheal infection. Rectal strictures are often found to accompany or follow pelvic inflammatory conditions. This association was noted by Poelchen and later by Hayes. Poelchen also pointed out that sodomy was an important factor in producing rectal stricture. Friedel reported that in a series of 12 patients with rectal stricture 9 admitted that they had practiced sodomy. Gonorrheal proctitis has been variously reported to occur in from 10 to 75 per cent of the cases of rectal stricture, but definite proof of its being the forerunner of stricture is not convincing. Stühmer accidentally infected 26 men with gonorrhea by using a contaminated glove in prostatic massage. All developed acute gonorrheal proctitis which cleared up in about 10 days without any ill effects. Baer's experience also shows the improbability of gonorrhea being the causative agent. In 163 cases of rectal gonorrhea he found only 1 stricture. The experience of these authors and of many others proves almost beyond the shadow of a doubt that neither gonorrhea nor syphilis is the cause of benign stricture of the rectum.

Lymphogranuloma can be differentiated from tuberculosis, actinomycosis and chancroids by means of a carefully taken history, by the absence of other tuberculous manifestations in the patient, by the absence of the ray fungus, by the absence of the bacillus of Ducrey and by a careful histological examination. A positive Frei test will give a correct diagnosis in from 85 to 90 per cent of the cases of lymphogranuloma.

TREATMENT

The treatment of lymphogranuloma has been disappointing, especially so in cases of stricture of the rectum. Most of those who have discussed the condition say little about the treatment of rectal stricture. Lee and Staley stated that they had carried out repeated dilatation of the rectum, but they added the warning that it is impossible to secure satisfactory coöperation from the type of patient who has this disease. Goldsmith reported that 2 of his patients, treated by dilatation, have been kept in comparatively good health for several years. Clemons asserted that by applying finger cots filled with carbon snow to the strictured area the strictures become more easily dilated. Resection of the rectum with colostomy was performed in 1 case in my clinic with satisfactory results. However, the fixation of the bowel due to perirectal changes makes this procedure hazardous. Colostomy alone, either permanent or temporary, has been performed in cases of rectal stricture, but this seems a high price to pay for relief from an inflammatory stricture that can be reached with the finger. These strictures differ from carcinoma, for which colostomy is usually done, in that the strictures occur in women in the prime of life. In the opinion of Hayes, of Martin and of Morter, however, colostomy in a majority of cases is not only an advisable but a necessary procedure.

Goia, reporting his results with X-ray treatment of the malignant type of rectal stricture, stated that the average expectancy of life among the untreated patients was 7 months; whereas, among those receiving X-ray therapy the survival of the 17 still living was 5 years and 4 months since the onset of symptoms; and of the deceased, 2 years and 3 months. Picard has reported good results from the use of diathermy. Wien and Perlstein have used the Frei antigen for therapeutic purposes in 16 cases of lymphogranulomatosis. Their results have been encouraging. Antimony and potassium tartrate given intravenously have been the basis of treatment in most clinics. Bloom advised starting with the intravenous injection, twice weekly, of 2 cubic centimeters of a 1 per cent solution of tartar emetic and increasing the dosage up to 7 cubic centimeters.

Twelve cases of stricture of the rectum have been seen in the rectal clinic of Emergency Hospital during the past 3 years. In all but 1 case, in which colostomy was performed, the treatment has been digital dilatation of the strictured area with the patient under general anesthesia. The following 4 cases are reported to show typical and interesting aspects of the condition and its treatment.

REPORT OF CASES

Case 1: E. C., a colored woman, aged 47 years, was admitted to Emergency Hospital complaining that for the past 2 or 3 years she had had pain in the rectum with constipation and bleeding. She was married and had 2 children. A general physical examination gave essentially negative findings except for the rectal condition. A digital examination of the rectum showed a stricture within easy reach of the finger. The constriction would not allow passage of the index finger. An x-ray film made following a barium enema showed the entire rectum to be extremely narrow, with the stricture extending upwards approximately 8 inches and taking a midline course. A Wassermann test of the blood was negative. The patient was operated upon, October 26, 1932, and a permanent colostomy was established on the left side. The general health of the patient has remained good. This is one of the first cases of rectal stricture treated at Emergency Hospital. At the present time an effort would be made to dilate the stricture from below before resorting to a colostomy.

Case 2: A. S., a colored woman, aged 28 years, was first seen in the dispensary on February 13, 1933. She stated that for about a year she had been troubled with constipation alternating with diarrhea. She had had slight vaginal discharge. She was not married but had 1 child living and well. A physical examination gave essentially negative findings except for the rectal condition. A digital examination of the rectum showed an annular stricture about 4 centimeters from the external sphincter. The strictured area admitted a bougie a little larger than a pencil. The patient was admitted to the hospital for operation. A Wassermann test of the blood was negative. An examination of a smear taken from the cervix was negative for gonococcus. A Frei test was positive. With the patient under general anesthesia, a digital dilatation of the stricture was done and a large rectal tube was inserted. This was kept in for 2 days and was then withdrawn. An enema, on removal of the tube, gave good results. The patient was discharged on the third postoperative day. She was advised to take 2 warm enemas daily to be retained for 15 or 20 minutes, and to return to the dispensary each week for dilatation with a bougie. She returned for dilation, however, only about once a month. A second digital dilatation, with the patient under general anesthesia, was carried out about a year subsequent to the first one. The patient has, up to the present time, been dilated with bougies in the dispensary on more than 40 occasions. A number 3 bougie can be passed without much discomfort. She has been working steadily and states that her health is good.

Case 3: G. M., a colored woman, aged 29 years, who was examined on July 14, 1933, complained that for the past 10 years she had had "piles," constipation and a mass on the left side of the abdomen. She had been operated upon 10 years previously, at which time the appendix and adnexae had been removed. She was married and had no children. A Wassermann test of the blood was negative. A physical examination was essentially negative except for the rectal condition. An examination of the anus and rectum showed external tags and an annular rectal stricture which admitted the tip of the index finger. X-ray study showed a tube-like rectum. With the patient under general anesthesia, the strictured area was dilated digitally. During the 6 months following her discharge from the hospital, she continued to return to the clinic at weekly intervals for further treatment, which included dilatation with bougies. During this period she was having normal bowel movements. On January 12, 1934, bougies, sizes 2, 3 and 4, were introduced, the latter with some difficulty. The patient had considerable pain, but after resting awhile she was able to go home. The following morning she was admitted to the emergency room with an acute abdominal condition. An exploratory laparotomy performed immediately showed a generalized peritonitis with perforation of the bowel at the rectosigmoid junction. The perforation was closed, but the patient died on the following day. An autopsy confirmed the operative diagnosis.

Case 4: M. D., a colored woman, aged 39 years, was brought to Emergency Hospital in an ambulance on January 18, 1934. She complained of pain in the abdomen and constipation alternating with diarrhea. She stated that she had had bowel trouble for the past 11 years and that the condition had grown worse during the previous 3 years. Since the bowel moved only when the content was fluid, she had to take cathartics constantly. She frequently passed blood. At the time of her admission to the hospital she was suffering from general toxicity. An examination of the rectum revealed an annular stricture 3 inches from the anal orifice. The stricture was spongy and bled easily. It did not appear to be due to a malignant lesion. A Wassermann test of the blood was negative. A Frei test was positive. With the patient under general anesthesia, the stricture was dilated and a large rectal whistle was inserted. The patient was discharged from the hospital on the ninth postoperative day. She returned to the clinic about once a month for dilatation with a bougie. On March 15, 1935, a number 3 bougie could be introduced without difficulty. The bowels now move daily without the use of laxatives. Her general condition is good.

Discussion of Cases

Our interest has been confined to those cases showing stricture of the rectum, but we feel sure that many more cases of lymphogranuloma have been seen in the outpatient department but have not been recognized or treated. The condition seems to be limited to individuals in the lower walks of life, although I can recollect several patients from the middle strata who I believe would have given a positive reaction to the specific antigen.

All of the 12 patients having rectal stricture in this series were colored women except 1, a white male. Their ages ranged from 18 to 40 years, or in other words during their active sex life. The history in these cases, as might be expected, was very unsatisfactory. All of the patients complained of "piles." On further inquiry they admitted that they had had a change of bowel habits beginning from 1 month to 17 years previously. The usual history was that there had been a progressively increasing constipation which required more and more cathartics and resulted in very painful stools. None of our patients admitted having any remembrance of a primary sore, though most of them said that they had had some vaginal discharge at times. The Wassermann test was negative in 7 cases, positive in 3 and was not made in 2 of the cases. The Frei test was positive in the 3 cases in which it was performed. Unfortunately we have not been able to keep a supply of the Frei antigen on hand for the sporadic occurrence of cases as they appeared.

In Case 1 a permanent colostomy was performed following an exploratory laparotomy. The patient's rectum was almost completely obstructed at the time of operation, and the sigmoid showed an involvement as far as the flexure. In 11 cases the treatment was dilatation with the patient under general anesthesia. There was marked similarity in the clinical findings of the cases which were dilated. In each case the stricture was within easy reach of the finger, and it was thought that above the stricture the bowel was free. To accomplish the dilatation 1 finger was first pushed through the strictured area. As the anal canal was usually constricted to the size of a lead pencil or smaller, this initial insertion took considerable force. Two fingers, then 3 fingers, were pushed through, until the constricted area was dilated to 1½ or 2 inches in diameter. A large rectal bougie was then passed, with great caution, to ascertain if there was any narrowing farther up. There was often considerable bleeding and discharge of fluid bowel content from the sigmoid. A word of warning might not be out of place here. When the stricture extends more than 6 inches up the rectum, care should be taken in passing bougies. They should be held between the thumb and fingers, as in passing a uterine sound, in order to avoid making too much pressure. Failure to observe this precaution in 1 case of our series resulted in the bougie's being pushed through the bowel at the rectosigmoidal juncture. Peritonitis and death resulted (Case 3).

In our cases we have found that the constricted area gave much more readily to dilatation than it does in cases of carcinoma or of stricture due to scar tissue. When the area was sufficiently dilated, a large, well lubricated rectal whistle, 5 inches long and 1½ inches wide, was inserted and left in for 2 days. During this time the patient was given a generous allowance of morphine. When the whistle was removed, retention enemas of warm water and witch-hazel were given twice daily.

The patients have usually remained in the hospital less than a week, and upon discharge they have been instructed to keep up the enemas and to return to the dispensary for treatments. Dilatation with bougies is carried out once or twice a month or as long as the patient continues to come to the dispensary. Most of the patients come for awhile and then, acquiring a false sense of security, they neglect their treatments and are lost sight of. They constitute such a transient and irresponsible group of society that the social department finds the "follow-up" in these cases difficult and often impossible.

Summary

1. Lymphogranulomatosis is much more prevalent than it is generally supposed to be.

2. It is a chronic disease and is disabling in its effects.

3. The Frei test should be done in all suspected cases.

4. Rectal strictures are best treated by digital dilatation with the patient under general anesthesia, followed by the passage of bougies at weekly intervals for an indefinite period.

BIBLIOGRAPHY

Anders, H. E.: Erfolgreiche Übertragung des Lymphogranuloma inguinale auf Meerschweinchen; II. Über Histogenese und Pathogenese des auf das Meerschweinchen übertragenen Lymphogranuloma inguinale. Klin. Wchnschr., 1931, **10**, 1655.

Baer, T.: Weitere Beiträge zur Lehre von der weiblichen Rectalgonorrhoe. Deutsche med. Wchnschr., 1897, **23**, 831.

Barthels, C., and Biberstein, H.: Zur Ätiologie der "entzundlichen" Rektumstrikturen (Lymphogranulomatosis inguinalis als Grundkrankheit). Beitr. z. klin. Chir., 1931, **152**, 161.

Barthels, C., and Biberstein, H.: Elephantiasis penis et scroti und Lymphogranulomatosis inguinalis. Ibid., 1931, **152**, 325

Barthels, C., and Biberstein, H.: Zur Histogenese der nach Lymphogranulomatosis inguinalis auftretenden Rektumstrikturen. Ibid., 1931, **152,** 464.

Bloom, D.: Strictures of Rectum Due to Lymphogranuloma Inguinale. Surg., Gynec. & Obst., 1934, **58,** 827.

Clemons, E. J.: Rectal Stricture: A Method of Treatment with Demonstration. Tr. Am. Proct. Soc., 1926, **27,** 81.

Coutts, W. E.: Genito-ano-rectal Lymphogranulomatosis of Male. Ann. Surg., 1934, **99,** 188.

Coutts, W. E., Herrera, J. M., and Perroni, T. L.: Lymphogranulomatosis Venerea. Am. J. Surg., 1933, **22,** 96.

Durand, M., Nicolas, J., and Favre, M.: Lymphogranulomatose, inguinale subaigué d'origine génitale probable; peut être vénérienne. Bull. et mém. Soc. med. d. hôp. de Par., 1913, **35,** 274.

Frei, W.: Eine neue Hautreaktion bei "Lymphogranuloma inguinale." Klin. Wchnschr., 1925, **4,** 2148.

Freund, H., and Reiss, F.: Übertragung des Lymphogranuloma inguinale (Nicolas-Favresche Krankheit) auf Kaninchen und Meerschweinchen. Klin. Wchnschr., 1931, **10,** 1658.

Friedel, G.: Le rétrécissement syphilitique du rectum. Paris méd., 1923, **47,** 384.

Goia, I.: Sángele in Limfogranulomàtozá Màligná. Cluj. med., 1932, **13,** 533.

Goldsmith, A. A.: Discussion of paper by Martin, C. F., J. A. M. A., 1933, **101,** 1552.

de Gómara, F. L.: Quoted by Coutts, W. E., Herrera, J. M., and Perroni, T. L., from Historiadores Primitivos de Indias. Madrid, Ed. Rivadeneyra, 1852, 1, 174.

Hansmann, G. H.: Non-tuberculous Granulomatous Lymphadenitis. Surg., Gynec. & Obst., 1924, **39,** 72.

Hayes, H. T.: Stricture of Rectum with Special Reference to Stricture in the Colored Race. Report of 160 Cases. Tr. Am. Proct. Soc., 1931, **32,** 173.

Hellerström, S.: Contribution to Knowledge of Lymphogranuloma Inguinale. Acta dermat.-venereol., 1929, supp. 1, p. 5.

Jersild, O.: Contribution à l'etude de la pathogénie du soidisant syphilome ano-rectal (Fournier). Ann. de dermat. et syph., 1920, **1,** 62.

Jersild, O.: Note supplémentaire sur l'éléphantiasis anorectal (syphilome ano-rectal de Fournier). Ibid., 1921, **2,** 433.

Lee, H., and Staley, R. W.: Inflammatory Strictures of Rectum and their Relation to Lymphogranuloma Inguinale. Ann. Surg., 1934, **100,** 486.

Levaditi, C., Ravaut, P., Lepine, P., and Schoen, R.: Sur la présence d'un virus pathogène pour le singe dans certains bubons vénériens de l'homme. Bull. Soc. franç. de dermat. et de syph., 1931, **38,** 576.

Martin, C. F.: Stricture of Rectum; Some of Its Problems. J. A. M. A., 1933, 101, 1550.

Meyer, K., and Rosenfeld, H.: Erfolgreiche Übertragung des Lymphogranuloma inguinale auf Meerschweinchen; I. Experimenteller Teil. Klin. Wchnschr., 1931, **10,** 1653.

Morter, C. W.: Discussion of paper by Martin, C. F., J. A. M. A., 1933, 101, 1551.

Picard, H.: Diathermiebehandlung der Strictura recti Zentralbl. f. Chir., 1925, **52,** 1709.

Poelchen, R.: Ueber die Aetiologie der stricturirenden Mastdarmgeschwüre. Arch. f. path. Anat., etc., 1892, **127,** 189.

Ruge, E.: Zur Pathologie und Therapie der Proktitis purulenta und ulcerosa. Arch. f. klin. Chir., 1907, **83,** 341.

Schede, M.: Ueber die Resection des Mastdarms bei den stricturirenden Geschwüren desselben. Arch. f. klin. Chir., 1895, **1,** 835.

Stühmer, A.: Der klinische Verlauf der Rektalgonorrhoe (mit einem Beitrag zur Fieberhandlung der Gonorrhoe). Dermat. Ztschr., 1921, **32,** 12.

Wendt, J.: Die Lustseuche in allen ihren Richtungen und in allen ihren Gestalten. Breslau, W. G. Korn, 1816, p. 167.

Wien, M. S., and Perlstein, M. O.: Intradermal Treatment of Lymphogranuloma Inguinale; Preliminary Report. Arch. Dermat. & Syph., 1933, **28,** 42.

PHRENICOTOMY: AN ANALYSIS OF THE RESULTS IN THIRTY-SIX CASES

Edmund Horgan, M.D., F.A.C.S.

and

J. Winthrop Peabody, M.D., F.A.C.P.

Professor of Diseases of the Respiratory System, Georgetown University School of Medicine

Surgical procedures have recently taken an important place in the treatment of pulmonary tuberculosis. The several methods employed are all directed towards collapsing the lung as a whole, collapsing tuberculous cavities in the lung, lessening the size of the chest on the affected side, and limiting respiratory movements. These results are obtained by collapsing the lung with air—pneumothorax; cutting adhesions between the lung and parietal pleura—pneumolysis; temporary paralysis of the hemidiaphragm—crushing the phrenic nerve; permanent paralysis of the hemidiaphragm—phrenicotomy; and collapse of the chest wall and lung by removal of ribs—thoracoplasty.

The important thing to decide in each case of tuberculosis of the lungs is whether the patient has a condition that can be helped by any of the surgical methods employed and if the general condition of the patient will justify the procedure. At the Tuberculosis Hospital, Washington, D. C., we determine and arrive at this by repeated clinical, laboratory and X-ray studies.

When the resident house officers have studied and observed a patient and have had the necessary clinical, laboratory and X-ray studies made, the patient is presented at the weekly clinical conference. With all these data at hand, the patient is examined by a consulting physician. The method of treatment is discussed and outlined. The patient is then informed of the treatment recommended. It might possibly be that a patient has a lesion that could be collapsed by a surgical operation but that the indicated operation would have to be deferred until the patient's general condition could be improved by sanatorium treatment. It sometimes happens that a patient is advised to have an operation and the patient's condition is suitable for it but the patient will not decide immediately, or will decline to submit to the treatment. In this report we shall discuss the results obtained on patients at the Tuberculosis Hospital who submitted to phrenicotomy.

Phrenic-nerve Operations

Surgical operations upon the phrenic nerve are employed to produce a temporary or permanent paralysis of one or both sides of the diaphragm. Temporary paralysis is produced by crushing the phrenic nerve with hemostatic forceps; permanent paralysis by section, resection or exeresis. When the hemidiaphragm is paralyzed there is a change in position and function on the affected side. The muscle rises in the chest, there is a complete and uniform atrophy of the muscle bundles, and the hemidiaphragm becomes thin and fibrous. The hemidiaphragm becomes immobile as a rule, but there may be a slight paradoxical motion, that is, it may rise and fall in a reverse order to the opposite hemidiaphragm. This is due to the force of the abdominal and thoracic pressures acting upon the paralyzed side during respiratory movements. The position may be influenced by the character of the lesion. In a few instances in which there is an involvement of the lower lobe and when there are extensive pleural adhesions at the base of the lung the hemidiaphragm may be elevated and will remain at its preoperative level after the nerve is cut, but the respiratory excursions will be stopped.

The indications and contraindications for phrenicotomy are not fully settled, but in general we can say that we are inclined toward the following views:

1. Phrenicotomy should be done in preference to phrenico-exeresis.
2. Phrenicotomy should be employed after, not before thoracoplasty, when thoracoplasty is indicated.
3. Phrenicotomy may be performed when pneumothorax cannot be employed or when it has failed.
4. Phrenicotomy may be employed when healing of cavernous tuberculous lesions has reached a maximum, leaving a well-defined cavity or cavities with fibrosis.
5. Phrenicotomy should not be employed when there is a soft, active tuberculous infiltration.
6. Phrenicotomy should not be performed on the aged.
7. Phrenicotomy is contraindicated when oleothorax is present.

Phrenicotomy should be performed by one familiar with the anatomy of the neck. What is seemingly a slight operation has at times become a formidable one and has even been followed by death. In the literature there are reported many operative accidents, such as hemorrhage, cutting of the thoracic duct and injury to the brachial plexus. Unquestionably, many accidents have occurred that have not been reported. The importance of finding and identifying the nerve was pointed out by Schwatt, who reported 3 cases of resection of some other nerve or structure mistaken for the phrenic nerve, and proved by reoperation in 2 of the cases. We should like to warn that phrenicotomy be performed with great care as to the handling and identifying of structures in the operative field.

Results in Thirty-six Cases

Our series comprises 36 cases upon which phrenicotomy was performed at the Tuberculosis Hospital from July 1, 1933, to October 1,

1933. The average age of the patients was 33.4 years. There were 19 males and 17 females. Sixteen patients were single, 17 were married, 2 divorced, and 1 widowed. Twenty-four patients were white, 11 were colored, and 1 was an Oriental.

The duration of the illness at the time of operation averaged 4.7 years. The tuberculous lesion was unilateral in 13 cases, bilateral in 23. Of those having a unilateral lesion, 9 were on the left side and 4 on the right. When the lesion was unilateral the operation was performed on the affected side. When the lesion was bilateral the operation was performed on the side showing the more extensive involvement: 11 were performed on the left side, 12 on the right. Pneumothorax had been employed previously with success in 1 case and without success in 19 cases. In the remaining 16 cases pneumothorax had not been attempted because of a large cavity and the danger of rupture in 7 cases, extensive involvement in both lungs in 7 cases, and non-coöperation on the part of the patient in 2 cases.

The results following the phrenicotomy in the 36 cases are interesting to review.

Affect on Hemoptysis

Previous to phrenicotomy 24 patients had had hemoptysis. Of these, 7 cases were mild and 17 severe. Of the 7 mild cases in which there had only been blood-streaked sputum, 2 have been arrested and 5 have been unaffected by the phrenicotomy. Of the 17 severe cases in which there had been definite pulmonary hemorrhage there has been no recurrence of the hemorrhage in 10 cases; it has been frequent in 4 cases; it has been unaffected in 1 case; and it is worse in 2 cases.

Affect on the Sputum

All of the 36 cases were expectorating sputum previous to phrenicotomy. Since the operation it has been reduced in quantity in 17 cases, unaffected in 14, and worse in 5.

Of the 36 patients upon whom phrenicotomy was performed 4 did not have tubercle bacilli in the sputum at the time of operation, while in 32 cases the organism was present. Of those cases in which there had not been tubercle bacilli in the sputum at the time of operation there have been none since the phrenicotomy. Of the 32 cases in which tubercle bacilli had been present in the sputum the bacilli have disappeared in 4, been reduced in numbers in 1, have been unaffected in 23, and have increased in 4.

Affect on Dyspnea

Dyspnea had not been present in 16 of our cases and had been present in 20 of them previous to phrenicotomy. Of those cases in which it had been present, 1 patient has been definitely relieved, 5 have improved, 6 are unimproved, and 8 are worse.

Affect on Coughing

Coughing has been noticeably less following phrenicotomy in those patients who have shown definite general improvement.

Summary

To summarize our results obtained in the 36 cases upon whom the operation of phrenicotomy was performed, we can say that 21 cases show definite improvement, 11 cases have not shown improvement, and 4 cases are worse. The operation was done under local anesthesia through a small incision, and in no case have we failed to find the nerve and section it. It is gratifying to report that there has been no death, no operative accident, nor any serious postoperative complication.

BIBLIOGRAPHY

Schwatt, H.: Behavior of Diaphragm After Phrenico-exairesis. Am. J. M. Sc., 1934, **187,** 338.

Schwatt, H.: Unsuccessful Phrenico-exairesis; Report of 15 Cases. J. Thoracic Surg., 1934, **3,** 503.

The Conquest of Diphtheria in New York City.—. . . By 1928 it was estimated that 500,000 school children had received injections; the death rate meantime being cut nearly in half. . . . In 1929 an intensive campaign for immunizing the younger children was undertaken by the Special Diphtheria Prevention Commission. . . . In 1934 it was estimated that about 45 per cent of all pre-school children had received injections since the start of the campaign in 1929. During this period the total number of cases (all ages) reported in Manhattan and Bronx Boroughs had fallen from 3,854 in 1929 to 686 in 1934, the deaths meanwhile declining from 190 to 32. The fatality rate, however, remained about the same, slightly less than 5 per cent. . . . That there is still room for improvement in New York, however, is evidenced by the diphtheria records of a number of other cities in this country. Certain of these have succeeded so well in their efforts to wipe out the disease that they were able to report in 1934 not a single diphtheria death among their children. Among these may be mentioned the Connecticut cities of Bridgeport, Hartford and New Haven; Duluth, Minnesota; Cambridge, Massachusetts; Syracuse, New York; and Salt Lake City, Utah. . . .

Reprinted from Statistical Bulletin, Metropolitan Life Insurance Company, September, 1935.

The Fundamentals of Internal Medicine*

DISEASES OF THE NERVOUS SYSTEM†

ANTOINE SCHNEIDER, M.D.

Professor of Neurology, Georgetown University School of Medicine

CONTENTS

INTRODUCTION
CEREBRAL LOCALIZATION
ORGANIC VERSUS FUNCTIONAL DISTURBANCES
THE CEREBROSPINAL FLUID
ETIOLOGIC TYPES OF DISEASE OF THE NERVOUS SYSTEM
- VASCULAR DISEASES
  - Syphilitic
  - Arteriosclerotic
  - Hypertensive
  - Embolic
  - Due to Congenital Vascular Defects
  - Subarachnoid Hemorrhage
  - Diagnosis of
  - Treatment of
- INFECTIOUS DISEASES
  1. Meningitis
     - Syphilitic
     - Epidemic Meningococcic
     - Pyogenic
     - Tuberculous
     - Due to Less Common Causes
     - Diagnosis of
     - Treatment of
  2. Encephalitis and Myelitis
     - Syphilitic
       - Disseminated Syphilis of the Central Nervous System
       - General Paresis
       - Tabes Dorsalis
     - Epidemic Encephalitis
     - Poliomyelitis
     - Sydenham's Chorea
     - Less Common Types
     - Diagnosis of
     - Treatment of
  3. Abscesses
     - Invasive Pyogenic
     - Embolic
     - Gummatous
     - Due to Less Common Causes
     - Diagnosis of
     - Treatment of
- NEOPLASTIC DISEASES
  - Glioma
  - Meningioma
  - Metastases
  - Less Common Neoplasms
  - Diagnosis of
  - Treatment of
- TRAUMATIC DISEASES
  - Cerebral Concussion
  - Skull Fracture
  - Compression Myelitis
  - Hematomyelia
  - Birth Injury
  - Diagnosis of
  - Treatment of
- INTOXICATIONS
- DEFICIENCY DISEASES
- CONGENITAL AND FAMILIAL DISEASES
- DISEASES OF UNKNOWN ETIOLOGY
  - Multiple Sclerosis
  - Subacute Combined Degeneration
  - Syringomyelia
  - Amyotrophic Lateral Sclerosis
  - Progressive Muscular Atrophy
  - Myasthenia Gravis
  - Muscular Dystrophy
  - Idiopathic Epilepsy
  - Migraine
  - Tics
- DISEASES OF THE PERIPHERAL NERVES
- DISEASES OF THE VEGETATIVE NERVOUS SYSTEM

INTRODUCTION

For many years the general attitude toward neurology has been a most unflattering one. It has been regarded as the science of the hopeless diseases, employing queer and unorthodox methods leading to no practical benefit and served by masters at theory but novices at therapy. More recently, however, this attitude has undergone a steady change attributable to several factors. In the first place, disease of the nervous system has shown a tendency at times to appear in epidemic and dramatic form with a consequent increase in public and medical interest. In the second place, therapeutic advances have, to a certain degree, lifted the pall of pessimism that previously enshrouded the subject. Finally, modern methods of teaching and propaganda have attempted to show neurology in its true light, not as a semi-esoteric science unrelated to the recognized branches of medicine, but as a development of strictly medical science based on the study of objective facts, using tested and scientific methods and oftentimes realizing the basic aim of medicine in general: the relief of pain and the cure of disability.

---

* This is the third of a series of articles on subjects concerned with the everyday practice of medicine. The first series concerned the subject, diseases of the heart; the second, applied pharmacodynamics: rational therapeutics. The object of these papers is to familiarize the older practitioners with the newer concepts of various diseases and groups of diseases, and to review for the more recent graduates in medicine the diseases with which they are coming in contact in their daily practice.

† Since a discussion of diseases of the nervous system naturally can not be covered entirely in one issue of the Annals, this subject will be continued from month to month until it has been concluded.

In considering neurological diseases reference must be made at the very onset to two anatomical facts that should stimulate attempts at early diagnosis and that completely control prognosis in every case. One is that the intrinsic tissues of the central nervous system are incapable of regeneration and when once destroyed are permanently lost. The other is that the central nervous system is enclosed in a rigid bony container and that changes in the volume of the brain, as in edema and neoplastic invasion, will result in certain phenomena that do not appear in other tissues more capable of expansion and that may lead to serious damage seemingly out of proportion to the precipitating cause. An understanding and appreciation of these two factors is essential to the proper evaluation and treatment of the common disturbances of nervous function. Strictly speaking, it is impossible to give an accurate statement regarding the prevalence of diseases of the nervous system, but when one considers the frequency with which such conditions as cerebral vascular disease, nervous system syphilis, cerebral concussion, chronic encephalitis and meningococcic meningitis are seen in general practice it must be agreed that it is high indeed.

In an attempt at a logical classification of diseases of the nervous system one based on etiological factors is by far the most desirable, but a strict classification of this type is impossible in its entirety since it must be admitted that we are still in the dark regarding the causative agents of a certain number of diseases. The etiological classification, however, will be adhered to insofar as it may serve to clarify rather than to confuse. There is still in neurology as in other branches of medicine a strong urge on the part of many investigators to manufacture new diseases on the strength of some minor pathological or clinical variation. No attempt will be made in these articles to cover all of these off-shoots in detail, but attention will be focussed on those disease entities that comprise the great majority of disturbances of the nervous system seen in the general practice of medicine and in its major specialties. A study of the patient presenting neurological symptoms should lead to the determination of three factors: first, the etiological agent; second, the type of pathological process present and its extent; and third, the localization of the disease process in the nervous system. The first two factors will be considered under the individual diseases, but since localizing symptoms and signs are the same no matter what the etiological and pathological processes may be a brief introductory discussion of cerebral localization will be attempted.

It should also be remembered that many symptoms and signs of purely functional origin without organic neurological basis may simulate and suggest true organic disease of the nervous system. While it is not within the scope of these articles to consider the functional nervous disorders in detail certain criteria for distinguishing organic from functional disturbances will be given.

CEREBRAL LOCALIZATION

In attempting a brief description of functional localization in the brain it is probably best to subdivide the brain into its principal anatomical divisions and consider the functions that neurophysiology and neuropathology have shown to be represented in these areas. These functions have been studied principally by two methods that may be called the positive and the negative, namely, stimulation and extirpation.

The frontal lobe is commonly held to be the center for voluntary movement as well as for certain expressions of consciousness, intellect and character. The precentral gyrus of the frontal lobe is predominantly the voluntary motor center. Movements of the left side of the body result from stimulation of the right precentral area, and movements of the right side of the body from stimulation of the left precentral area. The motor side of the speech function is located in the left hemisphere in right-handed individuals and *vice versa*. Moreover, the movements of the lower groups of muscles, such as those of the feet and legs, are controlled by centers in the uppermost part of the precentral gyrus and the paracentral lobule, while the upper groups of muscles, such as those of the face and larynx, are represented in the lowermost portion of the gyrus. Movements of the trunk and upper extremity lie between these two. Stimulation of these areas results in movement of the muscles they control on the opposite side of the body, while their destruction causes paralysis. Anterior to the precentral gyrus toward the frontal pole lies an area that is supposed to represent the center for a number of psychic functions. Lesions in this area have been noted to accompany such varied disturbances as loss of judgment and intellect, marked apathy, extreme emotional lability, irritability, ideational sluggishness and disorientation in all spheres. Psychomotor activity is interfered with, and the moral sense is disturbed. A recently noted sign of frontal lobe involvement is that of forced grasping in which the hand is unable to relax its grip on an object that it has grasped. Recent experiments, among which may be mentioned those of Dandy, would seem to indicate that localization in the frontal lobes is not quite as specific as had been previously conceded. However, until much more evidence to the contrary is brought forward it must be granted that they are primarily the centers for voluntary movement and quite probably for somewhat ill-defined but nevertheless existent psychic reactions.

The temporal lobes appear to be concerned with the functions of taste, smell and hearing. The first two center in the hippocampal apparatus, lesions of which frequently give rise to hallucinations of smell or taste. Lesions of the posterior part of the temporal lobe produce word deafness, in which sound is appreciated but the spoken word is not understood.

The parietal lobes are primarily sensory centers. The postcentral gyrus serves principally to distinguish the modalities of sensation, the crude perception of which is found in the thalamus. The representation of peripheral areas follows the distribution of that of the motor cortex behind which it lies, that is to say, that sensation in the feet and toes is discriminated in the upper portion of the gyrus, the face and head in the lower. Stimulation of the parietal cortex produces the so-called "sensory fits" resulting in queer disturbances of sensations, such as numbness, "pins and needles," etc., in the peripheral field of the stimulated area. Stereognosis, touch and pressure are also involved.

The occipital lobes are the cerebral centers for vision. Lesions of the optic radiations or of the area about the calcarine fissure will show up as definite defects in the visual fields, such as quadrant defects, hemianopia and visual hallucinations limited to certain areas of the visual fields. It is impossible on account of limitation of space to discuss the objective findings in disturbance of the optic tracts at any great length, but study of any of the simpler diagrams illustrating these relations will show the extremely important localizing value of such findings.

The subcortical centers may be roughly divided into the thalamus, which is the great sensory receiving and distributing center, and the extrapyramidal complex, which may be called the involuntary motor system. Most of the sensations arising in the periphery are perceived in the thalamus, but only crudely, and are relayed from there to more specialized centers in the cortex. In this connection a common phenomenon, but one difficult of explanation, may be mentioned. This is "thalamic pain," in which a lesion, usually vascular, of one thalamic nucleus results in severe, intractable pain of the opposite side of the body. The extrapyramidal system includes the corpus striatum, the red nucleus, the substantia nigra and the corpus luysi. It has important connections with the cerebellum, and its main efferent tract is the rubrospinal. Lesions of this system give rise to two main manifestations, namely, spasticity and tremor, so commonly seen in chronic progressive vascular disturbances and in chronic encephalitis.

The cerebellum is an organ of the nervous system the functions of which are not as accurately known as those of the cerebrum. It is probably, however, predominantly an equilibratory organ and exerts as well some influence on muscle tone. Its equilibratory function depends principally upon its connections with the vestibular nuclei in the brain stem and with the great proprioceptive tracts of the spinal cord. On the motor side it has extensive connections with the extrapyramidal motor system. As opposed to the cerebrum the cerebellar localization is ipsilateral instead of contralateral.

The brain stem includes the medulla, pons and midbrain. Within it are located most of the nuclei of the cranial nerves as well as the great ascending and descending tracts connecting the brain with the spinal cord and the peripheral centers. All of the structures in this region are located in a comparatively small area, so that a vascular, traumatic or neoplastic lesion results in symptoms insignificant in proportion to the extent of the noxious process. The extremely vital functions of respiration and cardiac control are also located in the brain stem.

The spinal cord contains a number of tracts both ascending and descending. The most important of the descending or motor tracts are the corticospinal, originating in the motor cortex and conveying voluntary motor impulses, and the rubrospinal, which springs from the extrapyramidal nuclei and mediates unconscious motor impulses having principally to do with muscle tone and posture. Both of these tracts are located rather deeply within the cord in the lateral columns. The principal sensory tracts are the dorsal columns conveying the senses of touch and vibration from cord to thalamus, viz., the spinocerebellar tracts located near the periphery in the lateral columns which convey sensations from muscles, joints and tendons principally to the cerebellum, and the spinothalamic tracts that conduct the sensations of pain and temperature. The grey matter contains the sensory or posterior horn cells and the motor or anterior horn cells. Cells mediating the autonomic functions are located somewhat laterally.

Organic Versus Functional Disturbances

It is of the utmost importance to be able to distinguish between symptoms and signs based on organic involvement and those of psychic origin. This is particularly true in those medicolegal cases resulting from trauma in which following long-drawn out litigation hysterical symptoms are common. A very careful past history must be taken with special emphasis on previous similar or suggestive episodes. The history of emotional or psychic strain or trauma may be connected with the appearance of symptoms. If precipitated by trauma did they appear immediately or after a latent period? The latter is more common in the functional group. Finally, has the patient some motive, conscious or unconscious, that can be served by the presence of such symptoms?

A striking feature of functional symptoms and signs is that they are usually multiple and usually vary from time to time, often being influenced by suggestion on the part of the examiner. Certain of the commoner hysterical symptoms will be mentioned. Anesthesias are often seen, the zone of anesthesia not corresponding to any organic central or peripheral distribution, involving all modalities of sensation and frequently of the "glove or stocking type." When present over the head or trunk it stops sharply at the midline, something that is never seen in organic lesions. The hysterical paralyses usually involve a whole half of the body or a whole limb again without regard to nervous innervation. Atrophy rarely appears and then only after a long period of time, and the reflexes are not changed. The hysterical hemiplegia also does not conform to the organic type, in that the lower limb is usually flaccid and is dragged instead of being spastic and circumducted. Face and tongue are rarely affected in the functional states, frequently in the organic. Hysterical disturbances of vision often show irregular contractions of the visual fields. Unilateral blindness with no objective ophthalmoscopic findings is fairly common. Hysterical aphonia appears suddenly and disappears just as suddenly. Very often the patient may be able to sing and examition of the vocal cords shows no paralysis. Hysterical vomiting although long-continued rarely results in marked emaciation. The globus hystericus or ball in the throat is well known. The multiplicity and oddity of complaints is often strangely suggestive of a functional basis. For instance, one patient after exhausting the usual symptoms complained bitterly that the noise of his kidneys clicking kept him awake. Finally, the absence of true objective findings either physical or serological, coupled with a painstaking and thorough history, will practically always allow one to distinguish an organic from a functional condition.

The Cerebrospinal Fluid

The cerebrospinal fluid stands in the same relation to the nervous system as the blood to the general systems of the body. It is by a study of this fluid, its changes in composition and circulation that we are able to postulate specific changes in the tissues within which and around which it circulates. For this reason a short résumé of a few pertinent facts covering it will be given.

The fluid is formed within the ventricles of the brain probably as a filtrate from the blood flowing through the choroid plexus. After leaving the fourth ventricle it passes into the subarachnoid space which surrounds the brain and cord. It courses under the base of the brain, then over its convexity to be absorbed back into the blood stream through the arachnoid villi. That part of the fluid surrounding the cord and collecting in the lumbar sac circulates much more slowly than the fluid under the base of the brain. Since the skull and vertebral column can for practical purposes be considered a rigid box, it is easy to see how changes in pressure within this box are reflected in the fluid that it contains. Normally, the pressure of the spinal fluid in the recumbent position is from 50 to 175 mm. of water. To convert this figure to readings with a mercury manometer it should be divided by 13. Under certain conditions, principally meningitis, tumor and intracranial hemorrhage, the pressure may be enormously increased.

The composition of the spinal fluid under various conditions is well known. Normally it has a specific gravity only slightly higher than water, 20 to 30 mgm. per 100 cc. of protein, 40 to 80 mgm. of glucose, 725 to 740 mgm. of chlorides and about 1 to 6 lymphocytes per cubic millimeter. When the circulation of the fluid is interfered with and partial or complete subarachnoid block is present the stagnant portion of the fluid shows marked increase in protein. This is also true when there has been appreciable tissue destruction as in infarction, or when there has been an invasion of protein containing elements such as pus or red cells. The glucose content drops in the presence of organisms that utilize sugar, such as the common cocci. The chloride content is depressed most in tuberculous meningitis. Another element in the fluid that shows changes that are frequently almost pathognomonic is the cellular content. Increase in the number of cells as well as variation in the type of cell present is strongly suggestive of the presence of infection of various types. The importance of the knowledge of the composition and dynamics of the cerebrospinal fluid and of the commonest changes must be emphasized, since it is frequently upon this knowledge that we must base early diagnosis and rational treatment.

Vascular Diseases

Before considering certain cerebral vascular diseases of rather specific type it may be well to mention briefly certain circulatory disturbances of the brain that are commonly met with and that may be due to a variety of causes. The commonest of these are cerebral anemia and cerebral edema. Cerebral anemia appears often in conjunction with breakdown of the general circulation or, more slowly, with progressive sclerotic changes in the brain vessels. As a rule, there are the symptoms of headache, fainting and vertigo, all most marked on change of position. Edema of the brain, too, may be due to acute insults, such as trauma, or to more chronic ones, such as intracranial inflammatory reactions and circulatory disturbances resulting in a generalized vascular decompensation. The outstanding symptoms are those of disturbance of consciousness, decrease in the cardiac rate and rise in the blood pressure.

All of the vascular disturbances of the nervous system have in common many symptoms, a number of which are vague and fleeting, at least during the prodromal period. Transient numbness, occasional headache or vertigo, slight visual disturbances, malaise, irritability and emotionalism may precede for some time more serious vascular accidents.

SYPHILITIC CEREBRAL VASCULAR DISEASE

Etiology. The frequent cerebral vascular complications so often seen in the course of syphilitic infections are beyond doubt due to the spirochete of syphilis, which has often been demonstrated in the affected tissues. Vascular involvement is extremely common, some investigators believing it to occur to some degree in all cases of syphilis. It probably begins in the secondary stage, and later on in the course of the disease it is found in conjunction with other evidence of syphilitic vascular involvement, particularly aortitis. It is more common in males than females, appears to have a special predilection for the colored races and is especially remarkable for the fact that comparatively young adults with no evidence of associated cardiac or renal disease are usually affected. While it is an unquestionable pathological fact that the process is established in most cases during the secondary stage of the disease, clinical manifestations rarely occur within a year after the initial lesion and most often are not evident for 4 or 5 years. In other cases the process appears to remain latent or at least asymptomatic for a much longer period. As a general rule, however, some evidence of syphilitic cerebral involvement when present will be found within 5 to 10 years after the primary lesion, the lower figures probably being more common.

Physiological and Pathological Considerations. The condition itself varies a great deal in symptomatology depending upon the type, location and extent of the lesions. The process may be predominantly endarteritic, affecting the smaller cerebral vessels and showing typical changes, as proliferation of the intima and gradual narrowing of the lumen, the result being a slow diminution of blood supply to the brain. Should this progress to the point of total occlusion small perivascular areas of infarction result. Involvement of the intima of the larger cerebral vessels is also quite common, often progressing to complete thrombosis and the establishment of large areas of infarction and softening. The vessels most commonly involved are the branches of the middle cerebral artery, particularly the lenticulostriate. At other times the media and the elastic coat are attacked and so weakened that a comparatively slight rise in arterial pressure may cause a sudden cerebral hemorrhage of the apoplectic type. Entirely similar conditions may appear in the spinal cord, although here the lesions are usually of the endarteritic type and widely scattered.

Symtoms and Signs. Clinical manifestations depend entirely upon the type, location and extent of the lesion. During the stage of progressive diffuse cerebral endarteritis the commonest symptom is that of headache. This is usually quite severe, at times is worse at night, and may be accompanied by convulsive attacks. Following this stage, which may be called the stage of irritation and the establishment of multiple areas of softening, there is often seen a progressive mental and emotional deterioration. Certain symptoms may definitely point to focal involvement of the brain, but this is more common with involvement of larger vessels. Sometimes retinal vascular changes with areas of retinal degeneration or small diapedeses may be seen. When the larger vessels are affected a leutic arteritis results. The picture is usually that of progressive weakness of one side of the body extending over a period of several days. Complete hemiplegia follows, with spasticity, increased reflexes, clonus and the appearance of abnormal reflexes. When the lesion is left-sided, aphasia is usually present. If the lesion involves the optic radiation, as it often does, a homonymous hemianopia will be evident. Other focal signs depend upon the location of the lesion. The apoplectiform type is fulminating in onset but is usually preceded by prodromata of headache, vertigo or irritability. The result is eventually the same as in thrombosis unless the insult be so severe that death supervenes. When the spinal cord is affected the only typical findings are those of diffuse small spinal lesions usually affecting the sensory as well as the motor tracts, the white matter somewhat more than the gray. There are usually scattered anesthesias and paresthesias, reflex changes in the nature of either absence or increase in reflexes, and weakness of scattered muscle groups. The serological findings in cerebral vascular syphilis are not constant. The blood Wassermann is positive in a majority of cases but may be negative. The spinal fluid Wassermann is frequently negative. There is usually, however, a moderate increase in protein content, the result of the tissue necrosis, some increase in lymphocytes and variable changes in the colloidal gold curve of moderate degree.

Course and Prognosis. In untreated, uncomplicated cerebral vascular syphilis the course is progressively downhill. There may be sudden death from a large hemorrhage, or repeated thromboses may result in greater damage and less recovery from each attack, or an increasing generalized physical and mental degeneration may ensue. Frequently, however, intercurrent disease or other syphilitic complications may terminate life before the cerebral vascular changes prove fatal. Under treatment, early in the disease when only prodromal and subjective symptoms are present, the outlook is usually excellent. It must be borne constantly in mind, however, that the sequelae of syphilitic cerebral vascular accidents are peculiarly prone to disappear spontaneously and often completely even in the absence of any form of treatment. This statement applies even to well marked hemiplegias that, if due to other causes, would almost certainly be permanent. Treatment in advanced vascular involvement can at most arrest the process, and even this object is frequently impossible of attainment.

(To be continued)

Tuberculosis Abstracts. *A Review for Physicians Issued Monthly by the National Tuberculosis Association, October, 1935.—. . . Tuberculosis Among School Employees.*—Some states have laws providing for the physical examination of teachers and the exclusion of those applicants who have tuberculosis. The Attorney General of Minnesota has ruled that "the skin test for teachers is reasonable exercise of the police powers of the school boards if required for the purpose of safeguarding the pupils of public schools." Previously the author demonstrated that children taught by teachers with open tuberculosis showed a much higher incidence of positive tuberculin reactions than those taught by other teachers. Ickert found that 93.5 per cent of the children taught by tuberculous teachers reacted to tuberculin as compared with about 25 per cent reactors in a control group. Frost reported 71 per cent reactions among pupils of a tuberculous teacher whereas only 11.4 per cent of children in adjacent districts taught by non-tuberculous teachers were positive to the test. . . .

Procedure.—A physician and a nurse visited each school building and applied the test to all employees who wished it. Arrangements had been made with the local radiologic society for the taking of x-ray films of the chests of all teachers and others concerned who were authorized by the school board to have such films made. Teachers who declined the skin test, as well as those whose tuberculin tests proved positive, were issued authorization slips for the making of the x-ray films. The films when made were forwarded to the hygiene department for corroboration. . . .

Results.—Altogether 2,190 persons were tested with tuberculin and 1,384 elected an option. A single dose of 0.1 mg. of tuberculin was used. Retesting of negative reactors could not be done because it was necessary to simplify the procedure. Of those tested 49 per cent reacted. The incidence of reactors varied curiously in different schools. In two schools in which there were less than five teachers, all were negative. The lowest number of reactors in the larger schools was 10 per cent and the highest was 82 per cent. As a group, school nurses showed the highest incidence, 91 per cent. Of the 2,466 who were x-rayed 59 per cent showed no evidence of disease. All films were interpreted by one of the authors who classified them as follows:

No evidence of disease	1,453
Scoliosis	2
Possible substernal thyroid	2
Change in cardiac outline	44
Evidence of increased bronchovascular markings	175
Evidence of fibrinous pleurisy	66
Evidence of first infection type and pleurisy	29
Questionable evidence of first infection type of tuberculosis	85
Evidence of first infection type of tuberculosis	532
Evidence of parenchymal lesions	78

. . . *Advantages of Survey.*—In the summary of the article the chief advantages of the survey are stated as follows: "First, disease may be detected before it has produced significant symptoms and when it can be treated successfully in a short time, thus saving the teacher a long period of inactivity from work. Such cases, by adequate treatment, may be prevented from breaking down so as to be a menace to the children and other teachers. Thus, the environment so far as tuberculosis is concerned becomes much safer from the standpoint both of the teacher and of the child. Second, compulsory examinations often lead to investigation on the part of the teacher so that she becomes informed concerning the contagious nature ot tuberculosis. Many such teachers become enthusiastic workers in the tuberculosis control program. This should lead ultimately to the enlistment and the support of great educational associations, which will be a valuable acquisition to the forces against tuberculosis."

Tuberculosis Among Employees of the Minneapolis Schools, F. E. HARRINGTON, M.D., J. A. MYERS, M.D., AND IDA LEVINE, M.D., *J. A. M. A., May 25, 1935.*

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA
Editorial Office, 1718 M Street, N. W.

EDITORIAL STAFF
COURSEN B. CONKLIN, A.M., M.D., *Managing Editor*
WALLACE M. YATER, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year   Single Copies, 25¢

THE SOCIETY'S ALBUM

'98 PORTRAITS '35

On the walls of 1718 M Street, which address to the informed means as much to medical Washington as #10 Downing Street does to the United Kingdom, recently have been hung pictures of two groups of members, one consisting of 136 of the nineties, the other 501 of 1935. Both groups are highly representative of the Medical Society of the District of Columbia but widely different in the mien and dress of the individuals depicted. Through the years that intervene the ideals, the underlying principles governing procedure, we believe, have been quite unchanging, but methods have changed, molded to meet the varying *mores* of the community. The President, Dr. Samuel Claggett Busey, of the nineties, who occupies the center of the '98 group, was a veritable patriarch,* in every way standing for the best within the profession and the community. The minutes of the Society and his presidential addresses will testify to Dr. Busey's worth as a leader. He served the Society as President in 1877 and continuously from 1894 to 1899—only two presidents† serving longer. The time and personal effort he gave to the safeguarding of the interests of the profession as a whole and the rights of even the youngest of the members is all a matter of record.

Among the portraits in the two pictures are 25 members‡ who appear both as a part of the assemblage of 136 in 1898, and of the 501 in 1935. They too deserve recognition. A number have served as past presidents; included in the 25 is our present president.§ Still another is serving the National organization as its distinguished Director of the Bureau of Legal Medicine and Legislation. Sixteen are on the "life" rolls of the Society, exempted from payment of all dues, and given accredited standing. Many interesting details could be enumerated which may or may not show present trends. In the make-up of our present picture can be read a definite progress for the past 37 years of the Society's existence, greater than any other period of 37 years, since its inception in 1817. There were no walls in any building in possession of the Society at the turn of the century for the hanging of a picture. A group picture of the present dimensions, 4′ x 9′ 1½″, would be an encumbrance solely on account of its size. Fathers and sons appear in both pictures. In that of the nineties we find the Hammetts, Mackalls and Smiths. In the picture of today the Clements', Holdens, Thomas', Wilkinsons and Wynkoops. The family unit is further emphasized by man and wife, both members at the present time and shown in the picture. The living past presidents are 100 per cent photographed and are given recognition on the individual portrait. Of the total membership 45.3 per cent were represented in 1898; 58.7 per cent in 1935. These figures show an interest and a coöperation much above the average in organizations made up of a membership so preoccupied and individualistic in their pursuits as are physicians. In 1898 there were 7 women physician members represented. A 300 per cent increase is noted in 1935, the actual total photographed being 22. Maybe the present alphabetical arrangement of members without a centering of the executives suggests that now we actually have a sizable percentage of members on committees sharing in the Society's maintenance, grossly many more than ever before; that authority is decentralized, that meetings in truth afford a forum for all to air their views concerning the conduct of affairs. Presidents now serve the Society for a year. Earlier precedents are not followed of continuing the terms of the executive officer.

---

* Beard of greater dimensions than his confreres; 124 in picture with hirsute adornment.

† Charles Worthington, 1817–1829; Frederick May, 1833–1848.

‡ A total of 34 members represented in picture of 1898 are still on the Society's rolls. The 25 in the two groups are: W. Sinclair Bowen, W. K. Butler, T. A. Claytor, G. R. L. Cole, Francis R. Hagner, Arthur J. Hall, R. T. Holden, C. M. Hammett, V. B. Jackson, J. T. Kelley, Jr., C. K. Koones, Frank Leech, S. B. Muncaster, Mary A. Parsons, Sterling Ruffin, F. O. Roman, D. K. Shute, H. M. Smith, W. M. Sprigg, I. S. Stone, John D. Thomas, G. T. Vaughan, C. A. Weaver, W. H. Wilmer, W. C. Woodward.

§ *Sans* mustache, *sans* beard, 1898, 1935.

Pictures if searched with an observant eye and contemplated with an attuned spirit express much more than volumes of print. We feel that for coming generations in our Society no more accurate record of its members, collectively and individually, could be left than the clearly outlined features of such a large percentage as seen in the 1935 group.

PROGRAM, SOCIETY ACTIVITIES

November 6: Stated Meeting.

November 13: Davidson Lecture.

"The Newer Public Health." George C. Ruhland, M.D., Health Officer, District of Columbia.
Buffet Supper.

November 20:

Program by the Washington Heart Association in Joint Session.

"The Heart as a Surgical Organ." Claude S. Beck, M.D., Associate Professor of Medicine, Western Reserve University.

There will be a discussion of contusions, acute and chronic compression and the establishment of a new blood supply of the heart by operation.

Dr. Beck began his research on surgery of the heart with Dr. Elliott Cutler, now Professor of Surgery at Harvard University, formerly Professor at Western Reserve University. Dr. Beck succeeded Dr. Cutler at Western Reserve University continuing his work.

November 27: Thanksgiving Eve—no meeting.

SECTION ON NEUROLOGY AND PSYCHIATRY

November 7:

1. "The Psychopathological Significance of Hostility." Ernest E. Hadley, M.D.
2. "The Clinical Significance of Hostility." Frieda Fromm-Reichmann, M.D.

Discussion to be opened by Lucile Dooley, M.D.

U. S. NAVAL MEDICAL SCHOOL

MONTHLY MEETINGS RESUMED

Under the auspices of the naval medical officers in the District of Columbia the initial fall meeting was held at the School building at 8 p.m., October 7, 1935. Subject:

"Status Hypoplasticus, With its Involvement of the Internal Glandular Mechanisms." Walter Timme, M.D., New York City, Professor of Clinical Neurology, Columbia University; Senior Attending Neurologist, Neurological Institute, New York City; Past President, Association for the Study of Internal Secretions; Author of "Lectures on Endocrinology."

November 4:

"New and Improved Developments in Urologic Surgery." Oswald S. Lowsley, M.D., Director of Department of Urology, James Buchanan Brady Foundation of New York Hospital.

The paper will be general in character, covering several phases of urologic surgery.

Through the courtesy of Captain H. W. Smith, M.C., U.S.N., In Command, invitations to these meetings reach the Medical Society's office each month.

WOMEN'S MEDICAL SOCIETY, D. C.

November 5:

"Pernicious Anemia." Grace G. Purse, M.D.

Present Officers: Elizabeth E. Chickering, M.D., *President*
Alma Jane Speer, M.D., *Corresponding Secretary*

RADIO BROADCASTS

Medical Society of the District of Columbia

The Subcommittee on Radio Broadcasts of the Committee on Public Information has just released the program for October and November. The Old Family Doctor series with anonymous speakers and the broadcasts with listed speakers will be presented over Station WMAL, at 11:15 a.m., each Tuesday, as follows:

October 1:	"What is a Dietitian?" Washington Dietetic Association: Miss Mildred Parker, *President*; Miss Rowena Roberts, *Past President*. Interviewed by Old Family Doctor.
October 8:	"Birthday Party." Sterling Ruffin, M.D.
October 22:	"Deafness." John H. Trinder, M.D.

The Old Family Doctor Series

October 15:	"Granny Magic."

October 29: "Tuberculosis Examination in the Schools."
November 5: "Nervousness."
November 12: "Blood Pressure."
November 19: "Vagaries of the Vegetarian."

RADIO PROGRAMS

American Medical Association

The new radio program of the American Medical Association, replete with vivid dramatic form and incidental music will be introduced each Tuesday at 5 P.M., Eastern Standard Time over Station WMAL, beginning October 1. It will be offered over the entire Blue network of the National Broadcasting Company.

"MEDICAL EMERGENCIES AND HOW THEY ARE MET"

The hero of the medical emergency, the doctor who is available day and night for the protection and promotion of YOUR HEALTH, is the real sponsor of this series of practical and entertaining health broadcasts. Spread this information among your clientele.

PERSONALS AND NEWS

Arthur C. Christie, M.D., during October will make addresses at the following meetings:

October 7–8: Kansas City.
Southwestern Clinical Society
"Diagnosis and Treatment of Carcinoma of the Breast."
Joint County Medical Societies
"The Washington Plan."
The Coöperative Club of Kansas City
Address on General Public Health Subject.
October 15: Norfolk
Virginia State Medical Society
"The Answer of the Medical Profession to State Medicine."
October 17: Detroit
International Postgraduate Assembly of North America
"The Diagnosis and Treatment of Cancer of the Lip, Mouth and Throat."
October 28–29: Omaha
Omaha Clinical Society
"Cancer of the Lip, Mouth and Throat."
"Diagnosis and Treatment of Bronchiectasis."
Also, 4 separate addresses on economics.

Walter Freeman, M.D., will participate in the following meetings:

October 4: Davenport, Iowa.
Scott County Medical Society
"The Diagnosis and Treatment of the Neuroses."
November 18: Topeka, Kansas.
Staff of the Menninger Sanitarium.
"Physical Factors in Relation to Mental Disorders."
November 19: Kansas City.
Jackson County Medical Society.
"The Endocrine Glands in Relation to Personality."

On *September 25* he gave the opening address before the George Washington University School of Medicine: "The Mind and the Body."

Walter Freeman, M.D., H. H. Schoenfeld, M.D., and Claude Moore, M.D.:

November 19–22: St. Louis.
Southern Medical Association
Exhibit on "Ventriculography with Thorotrast."

This same type of exhibit was included in the International Neurological Congress in London, July, 1935.

Daniel D. V. Stuart, Jr., M.D., becomes Adjunct Professor of Neuropsychiatry on the faculty of Georgetown University School of Medicine.

Following his graduate training, Dr. Stuart was Assistant in Clinical Neurology at Johns Hopkins University School of Medicine for 5 years; later he became Associate Professor, following which Professor of Neurology at Georgetown University School of Medicine. He resigned this position 2 years ago. Dr. Stuart in his course will give a series of lectures on the borderland conditions which link the fields of organic neurology and mental disease.

George C. Ruhland, M.D., will give the Davidson Lecture on the evening of November 13, 1935. Subject: "The Newer Public Health."

This lecture, given biennially under the terms of the Davidson Foundation, attracts a large assemblage. Selection as lecturer is a distinction. Previous lecturers have included Drs. William Hallock Park of New York City, and Edwin A. Merritt of this city.

Cline N. Chipman, M.D., will open the discussion of a "Symposium on Teaching and Instruction in Anesthesia in the Medical School and Teaching Hospital," at the meeting of the Southern and Midwestern Association of Anesthetists in St. Louis, November 18.

Sterling V. Mead, D.D.S., and Cline N. Chipman, M.D., will present a paper, "Avertin and Nitrous Oxide Oxygen in Dental Surgery," at the meeting of the Southern and Midwestern Association of Anesthetists in St. Louis.

William Gerry Morgan, M.D., conducted a

diagnostic clinic on the "Deficiency Diseases in Adults," at the International Assembly of the Interstate Postgraduate Medical Association of North America in Detroit, October 18.

DR. SECKINGER APPOINTED DEPUTY HEALTH OFFICER, DISTRICT OF COLUMBIA

On October 1, 1935, Dr. Daniel Lamont Seckinger became Deputy Health Officer, District of Columbia, succeeding Dr. Edward J. Schwartz, resigned. Dr. Seckinger, who was born in Georgia, December 29, 1893, has had contacts in his professional career which give to him an excellent background as a public health official. His baccalaureate degree was obtained in Lenoir-Rhyne College in 1913; master's degree, University of North Carolina in 1915. During the World War he served for two years as bacteriologist. He was graduated M.D. from Johns Hopkins University in 1925, serving on the House Staff at Johns Hopkins Hospital and later in St. Mary's Hospital, Pierre, S. Dakota. He afterwards became Deputy Commissioner of Health of Savannah and Chatham Counties, Georgia. During 1930–1932 he served as a Rockefeller Foundation Fellow, Johns Hopkins School of Hygiene and Public Health. The degree of D.P.H. was conferred on him in 1933. More recently he was State Epidemiologist for his native State, with station in Atlanta, resigning to accept his present position.

DR. SAMUEL LOUIS HILTON HONORED

On the evening of October 19, 1935, a testimonial dinner was given to Dr. Hilton by the New York Branch of the American Pharmaceutical Association, the District of Columbia Pharmaceutical Association, the District of Columbia Veteran Druggists' Association, the Faculty of the School of Pharmacy of George Washington University and the District of Columbia Board of Pharmacy, at the Mayflower Hotel. Preceding the dinner a presentation was made by the New York Branch of the American Pharmaceutical Association of the Remington Medal which is awarded annually to the man or woman who has done most for American pharmacy during the preceding year. This is the fifteenth Remington Medal that has been awarded and the first presented to a resident of Washington. Dr. Hilton, who is an associate member of this Society, is a life member of the American Pharmaceutical Association; frequently has represented his profession on the United States Pharmacopeia Revision Committee; served as Treasurer of the convention since 1910. For 8 years he was Secretary to the Board of Pharmacy of the District of Columbia. He has been particularly active in legislative affairs, joining with the Legislative Committee of the Medical Society of the District of Columbia in activities of mutual interest. His coöperative work in maintaining the highest ethics of his profession in his relations with the physician and his patient has been recognized and appreciated during his long years as a local pharmacist.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

Public Health Curriculum

Inclusive with the regular medical course there has been organized a four-year integrated curriculum in public health. Special and graduate students may enroll for this work. Such subjects as community health, sanitation, hygiene, preventive medicine and the public health aspects of medicine and surgery will be presented. Dr. Roscoe Roy Spencer is to be the coördinating officer. The professorial lecturers, specialists in their respective fields, are listed in the school announcement, as follows:

Warren F. Draper, A.B., M.D., Public Health Administration
Walter L. Treadway, M.D., Preventive Medicine
Royd R. Sayers, M.D., Industrial Hygiene
William Charles White, M.B., M.D., Tuberculosis
Louis L. Williams, M.D., Preventive Medicine
R. A. Vondelehr, M.D., Preventive Medicine
Estella F. Warner, M.D., Child Hygiene
Leslie C. Frank, C. E., Sanitary Science
Ralph E. Tarbett, B.S., Sanitary Science
Selwyn D. Collins, A.M., Ph.D., Sanitary Science

Newly Appointed Members of Faculty

A. K. Balls, M.D., Adjunct Professor of Biochemistry
Edward Lewis, M.D., Assistant Professor in Pediatrics

William S. Anderson, M.D., Instructor in Pediatrics
Harry A. Davis, M.D., Instructor in Pathology
Elmer W. Fugitt, M.D., Clinical Instructor in Medicine
Madison Hunt, A.B., M.D., Fellow in Biochemistry
Harry S. Douglas, A.B., M.D., Research Assistant in Biochemistry
Otto Behrens, M.A., Ph.D., Research Assistant in Biochemistry
Clement J. Rodden, B.S., M.S., Microanalyst in Biochemistry
James W. Watts, B.S., M.D., Associate Professor of Neurology.

GEORGE WASHINGTON UNIVERSITY MEDICAL SOCIETY

October 19:

1. "The Present Conception of So-called Chronic Cystic Mastitis." Alec Horwitz, M.D.
2. "Treatment of Burns." William B. Marbury, M.D.
3. "Diagnosis of Carcinoma of the Large Intestine." John H. Lyons, M.D.
4. "The Treatment of Acute Empyema." J. Lloyd Collins, M.D.
5. "The Diabetic as a Surgical Risk." Paul S. Putzki, M.D.
   Discussion: Drs. H. H. Kerr, James F. Mitchell and Daniel L. Borden.
   Scientific program arranged by Dr. Charles S. White.

November 16:

"Common Cold." Perrin H. Long, M.D., Johns Hopkins University School of Medicine.

The local profession is cordially invited to attend these meetings which are held on the third Saturday each month of the school year.

WASHINGTON GYNECOLOGICAL SOCIETY

October 26:

1. "Critical Analysis of 569 Forceps Deliveries." Howard P. Parker, M.D.
   Discussion: Samuel M. Dodek, M.D.
2. "A New Breast Support for the Puerperium." Bernard Notes, M.D.

SOUTHERN MEDICAL ASSOCIATION

MEETING AT ST. LOUIS

November 19–22, 1935

The local profession in large numbers should attend the sessions of the 29th Annual Meeting of the Southern Medical Association to be held in St. Louis, November 19–22, 1935. The fine scientific program together with the attractive social features of these meetings are well recognized. The unusual facilities of the two medical schools in St. Louis and the numerous hospitals, combined with the excellent hotel accommodations, make St. Louis an ideal city for this medical gathering. Addresses and papers will be presented by distinguished clinicians, not only from the South, but from all over the United States as well as from several foreign countries.

The St. Louis Medical Society extends a very cordial invitation to all physicians in good standing in their State and provincial medical societies to attend this meeting.

ANTI-TUBERCULOSIS CAMPAIGN

Emergency Fact-finding Set-up

On November 25, with the use of X-ray machines placed in strategic locations in Washington, the taking of pictures with the newer paper method will begin. It is expected that 10,000 investigations of this character will be made constituting a preliminary screening. Local physicians may refer cases either for an initial picture or for a check on a patient under treatment. All of this work is to be done without cost to the patient. A special effort will be made to make investigations of individuals in homes where recognized cases exist. Through the efforts of Dr. George C. Ruhland, Health Officer, there is an allotment of $99,000.00 from WPA funds to carry on this work. The Medical Society of the District of Columbia is coöperating fully. Speakers from the Society's Speakers' Bureau have appeared before the various citizens' associations informing them of the coming drive. Although there is an evident shortage of beds for the tuberculous at the present time, it is thought that the ultimate goal of 2 beds per annual death from the disease will ultimately be provided. At a mass meeting held in the Society's Building, October 22, all projected plans were discussed. Enthusiasm of both the lay and professional audience, which included representatives of the negro race, bespeaks a successful start toward the elimination of the present unenviable position the District of Columbia holds in the list of tuberculosis morbidity and mortality rates.

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV NOVEMBER, 1935 NUMBER 11

A COMPLEMENT-FIXATION REACTION IN DEMENTIA PRAECOX

PRELIMINARY REPORT

L. P. SHIPPEN, M.D.
Washington

While running complement-fixation tests with an organism, isolated from the feces of the insane, the water of condensation of Difco serum made was noted to be nearly as good an antigen as the organism grown in this medium. In consequence, work upon the bacterium was dropped in order to study the action of the medium.

With 0.01 and 0.005 per cent concentrations of Difco serum in distilled water, heated sera from the insane were found to be associated with contradictory and weak reactions, but unheated sera in dilution of 1 to 5, containing only native complement, gave uniform results with repeated examinations.

The method employed was adapted from the technic for the Wassermann test used in the United States Veteran's Bureau. When examined by this method, 4 patients were 4 plus, 2 were 2 plus and 1 was negative. The controls consisted of 3 laboratory workers and 3 attendants. The former were negative, and the latter were 2 plus. All of the patients were types of dementia praecox, and those giving strong reactions were early cases with marked symptoms.

Out of the 7 patients, 4 seemed to differ definitely from the other 3 and from the 6 non-insane controls, but the meaning of the reaction was far from clear. Very probably, it belonged with the group of non-specific reactions which are found in unheated sera, in which case study of a larger number of controls should result in finding a large proportion of 4 plus reactions in the non-insane.

The work up to this point had been done at the Springfield State Hospital for the Insane at Sykesville, Maryland, but since an adequate number of controls was not available there the investigation was continued in Washington, D. C., where the Commanding Officer of the United States Naval Medical School offered facilities when room was available, and, while waiting, some examinations were also made at the Garfield Memorial Hospital.

Sera from 43 controls were studied in Washinton, and 42 of these gave no higher than a 2 plus reaction. They closely resembled the 6 controls and 3 of the patients tested at Sykesville, and were in marked contrast to the other 4 patients who had given 4 plus reactions.

The one significant exception was a 3 to 4 plus reaction in a case of malaria, a disease in which the serum sometimes contains heat-resistant antibodies that cause positive reactions in the Wassermann test, the antigen of which is related to the one used by the writer, the former being an extract of dried beef heart, the latter an extract of dried beef serum. Thus any deviation of complement produced by the writer's antigen in malarial serum would tend to strengthen the theory that it had a specific action upon antibodies present in dementia praecox. No other relation to syphilis was noted, as several samples that were negative to the writer's antigen gave 4 plus Wassermann reactions.

Unfortunately, no other sera from the insane were available to run with the 43 additional controls examined in Washington, but any variation in strength of antigen due to error in making dilutions must have been small, as all 3 stock dilutions employed were carefully made from the same sample of dried, powdered serum. In 0.005 per cent concentration all 3 were very faintly turbid when viewed in a Wassermann tube and reacted in much the same way with the writer's serum, while 1 was definitely sufficiently strong to give a 3 to 4 plus reaction with malarial serum.

Furthermore, most of the controls were examined with twice the concentration of antigen that caused complete inhibition of hemolysis with the insane, and, as almost all of the control sera came from the sick, many contained so little complements that smaller units had to be employed in addition to reducing the percentage of cells from 5 to 2 per cent, a procedure which lessened the amount of complement in the unit. Thus even in the presence of a weaker antigen the controls should have failed to cause any hemolysis, if specific antibodies had been present in similar strength to that in the sera of the dementia praecox patients.

The strongly positive sera from the insane, also, remained constant over a period of a few weeks, at least; while some weakly positive controls have varied in a few days, as would be likely if the latter were due to non-specific antibodies in unheated serum and the former to both specific and non-specific antibodies.

Thus, although most of the controls were run separately, the findings seem to indicate that the sera of some cases of dementia praecox contain antibodies specific for the antigen as well as the non-specific antibodies which are present in various individuals and probably are responsible for many of the weak reactions found during the course of the work, even though some of these may have been due in part to a carrier state.

Salting sera preserves complement and seemed to diminish the non-specific reactions. This procedure did not prevent the 3 to 4 plus reactions with malaria, nor did it appear to injure the specific antibodies in syphilitic sera, and, therefore, it should aid in differentiating reactions in the sera of the insane from controls.

If the presence of specific antibodies in the insane should be confirmed, a field of research is opened to determine the cause. They might be produced in response to bacterial action, since reactions with non-specific antigens are associated with some infections (Bunnell; Paul and Bunnell) and the antibodies of syphilis are demonstrable by means of a non-specific antigen.

However, in order to have a causal relationship to dementia praecox, any organism responsible for the findings must be one which does not produce any signs of infection and yet has an affinity for the nervous system. There are no constant physical symptoms nor consistent pathological lesions in dementia praecox that are related to the mentality, nor is there a causative relationship to a previous illness.

These requirements seem impossible to fulfil, and certainly they appear to rule out all known toxins, while the toxoids, at first glance, are equally impossible since they are harmless to lower animals in small doses and in large doses produce definite lesions.

On the other hand, the toxoids of B. diphtheriae, B. tetani and B. botulinus have an affinity for the nervous system and are frequently present in the intestines where they are formed from the toxins of these bacteria by the secretions of the bowel and the action of anaerobes. It is conceivable that, absorbed from the intestine over a long period, they might have a very different action upon the complex nervous system of man than when injected into lower animals. Under normal conditions, of course, they would merely produce a high degree of immunity, but variations in immune reactions modify the course of all infections, and the response of the body to long-continued stimulation might vary with the time and with the amount of toxoid absorbed in relation to the resistance of the individual. Animals cannot be immunized beyond a certain point. If too many injections are made, they lose part of their immunity and sometimes die, the result varying with the resistance of the animals.

It seems possible for some susceptible individuals to lose their immunity quickly, even with small doses of toxoid, others with larger doses, while others retain their immunity indefinitely because of small dosage and lack of susceptibility, and, in the latter case, an excess of immune bodies might be present in the brain (Freund).

Many of the insane appear to have a hereditary susceptibility to some factor, and if their immunity were lost or unduly increased from this cause, either toxoids with an affinity for the nervous system would be present in the blood or an excess of immune bodies would be localized in the brain. Neither small amounts of toxoid nor an excess of immune bodies would be likely to produce demonstrable lesions, yet, by altering, even to a slight degree, the colloidal state of the brain or by action on the cells, both might interfere with the normal response of the nervous system to external stimuli and to those from thought and suggestion and thus produce some of the symptoms of insanity.

N. B.: Acknowledgment for facilities and aid is due many at the Springfield State Hospital, Sykesville, Maryland, and at the Garfield Memorial Hospital and the United States Naval Medical School, Washington, D. C.

BIBLIOGRAPHY

Bunnell, W. W.: Diagnostic Test for Infectious Mononucleosis. Am. J. M. Sc., 1933, **186**, 346.

Freund, J.: Accumulation of Antibodies in the Central Nervous System. J. Exper. Med., 1930, **51**, 889.

Paul, J. R., and Bunnell, W. W.: Presence of Heterophile Antibodies in Infectious Mononucleosis. Am. J. M. Sc., 1932, **183**, 90.

Modern Treatment of Craniocerebral Injuries with Especial Reference to the Maximum Permissible Mortality and Morbidity.

Summary:

1. Fourteen out of 20 craniocerebral injuries do not require operation as a method of treatment.
2. Of these 14, 1 will die.
3. Of the remaining 6, 2 will die—but *all* should be treated by operation.
4. One case out of 40 will be sufficiently dehydrated to be toxic from the cause.
5. One out of 200 unoperated cases will have complicating intracranial sepsis almost certainly in the form of meningitis.
6. One out of 20 operated cases will have justifiable postoperative sepsis either in the form of meningitis or cortical abscess.
7. Modern treatment of the acute stages of craniocerebral injuries requires that both the diagnosis and therapeusis must be based on the pathology present.
8. Any method of treatment based on these requirements is suitable providing the mortality and morbidity rates are kept within the permissible maximum limits arbitrarily set up as described above.
9. A method of treatment combining dehydration, lumbar decompression, exploratory trephination and appropriate reparative operative procedures is outlined.

Extract from article by Donald Munro, M.D., Boston; *New England Journal of Medicine, November 7. 1935, p. 893.*

PANCREATOSIS

(Parenchymatous Degeneration of the Pancreas)

V. J. Dardinski, M.D.

Professor of Anatomy, Georgetown University School of Medicine

Parenchymatous degeneration of the viscera is a very common finding at autopsy. It is very often seen in the kidney, liver and heart, and is usually associated with some form of toxemia.

The usual type of degeneration found is the one commonly known as cloudy swelling or albuminous degeneration. The severity and extent of the degeneration will depend a good deal upon the type of infection, its intensity and duration or upon the amount of tissue destruction.

Do all the tissues of the body show signs of degeneration in the presence of toxemia, or is the process confined to those which have an eliminating function? This question has often been asked but has not yet been satisfactorily answered.

So far as I am able to determine, there is no fast rule that governs the predisposition of the various viscera to such a change, unless we admit that the organs whose function it is to eliminate toxins, however slight that function may be, are the sites of predilection for such a change. If this is so, then the heart at once becomes an exception to the rule.

There is not much difficulty in recognizing this change in the kidney and liver. Even the medical student in his early study of pathology becomes quite expert in detecting it, because it is so readily apparent.

With our present methods of technic we know that some organs become involved very early in the presence of toxemia. Others become involved later, and still others do not appear to be affected.

By logical reasoning it would seem that all tissues should show some signs of degeneration, but we do not find them because of inadequate technic, or we do not look for them routinely.

I wish to call attention to a degenerative process in the pancreas which I venture to label "pancreatosis." I have chosen this term chiefly because of its close resemblance to the picture seen in the degenerative process in the kidney which we designate as nephrosis and to distinguish it from an inflammatory process. It is purely degenerative and is found only in cases in which toxemia is apparent.

I realize that I am treading upon dangerous ground and dare say I may be severely criticized for drawing such conclusions, but I am convinced, after studying various sections of the pancreas routinely for five years, that all visible changes are not due primarily to postmortem autolysis or postmortem degeneration. I feel it is time we disregard the idea of all changes seen in the pancreas as due to postmortem changes and interpret what we see without fear of expressing our opinions.

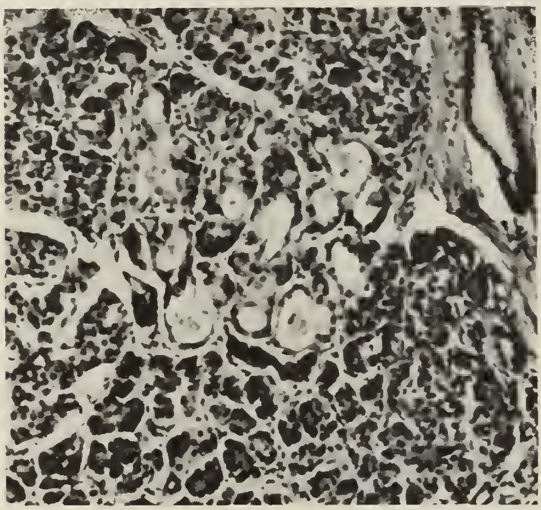


Fig. 1. Low-power Photomicrograph of the Pancreas of a Case of Typhoid Fever

In the central area many acini are undergoing various stages of degeneration, which is fairly well advanced, since many of the cells have practically disappeared. The acinar dilatation, which contains a pink-staining homogeneous material, can readily be seen.

We all realize what a difficult task it is to study the pancreas chiefly because of the fear instilled in us by our predecessors, and as a result our knowledge concerning its pathologic changes is quite meager.

In this study postmortem material from 100 cases was used. It was obtained as soon after death as possible. In the majority the time elapsing between death and obtaining of the tissue was 4 hours, as this is the legal requirement in the District of Columbia.

Grossly there were no marked pathological changes apparent in the pancreas of any of the cases. There was a variable degree of fatty infiltration or replacement of pancreatic tissue by fat which was so inconstant that no definite opinion could be reached.

The weight of the gland, after dissecting it free from the surrounding tissue, was so inconstant that again no definite opinion could be reached. The weights varied from 74 to 120 grams, with an average weight of 89 grams.

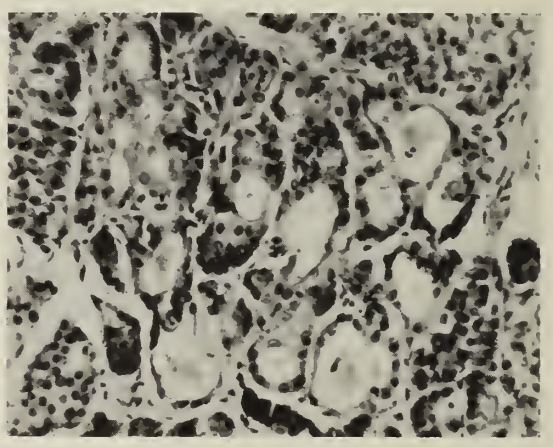


Fig. 2. High-power Photomicrograph of the Central Area Shown in Figure 1

Microscopically the changes found were quite constant. The acinar cells under normal conditions, stained with hematoxylin and eosin, show uniform staining of the cytoplasm and nuclei, and the cells appear to be regular in size and outline.

When pancreatosis is present acinar cells scattered throughout the sections are found to show various stages of degeneration. The early changes, which are not well shown in the microphotographs, are an increase in the size of granules found in the cytoplasm, associated with an increase in the size of the cell. The nucleus appears slightly more dense than normal and is pushed toward the base of the cell, leaving the cytoplasm with its pink-staining granules toward the side of the lumen of the acinus.

As the process continues the acini apparently become gradually more distended (Figs. 1 and 2). The cells apparently slowly become compressed, the pink granules of the cytoplasm disappear, and the cytoplasm of the cell, what is left of it, becomes poorly stained. The nuclei are compressed into various shapes, and instead of the heavy staining of the nuclei they now appear pale, vesicular and lightly stained. The outline of some of the cells becomes indistinct, and in many no nuclei can be seen.

The lumen of the acinus becomes apparently gradually distended and filled with a pink-staining homogeneous material, and sooner or later only faint traces of the cellular walls remain as "ghosts" or as pink-staining homogeneous threads.

The cases used in this study represent a variety of pathologic lesions. They are in brief: Lobar pneumonia, 14; bronchopneumonia, 54; septic infarcts of the lungs, 6; carcinoma of the lung with bronchopneumonia, 4; meningitis, 5; chronic thyroiditis, 1; lymphosarcoma, 1; peritonitis, 7; septicemia, 6; and typhoid fever, 2.

The extent of the pathologic change appears to depend more upon the duration of the toxemia than upon the severity. For instance, in the cases of typhoid fever, in which the disease had been present over 6 weeks, the acinar changes were more marked and extensive than a case of lobar pneumonia, in which the symptoms were present for only 1 week. In other words, the changes seem to be, more or less, in proportion with the duration of the illness.

The pancreatic glands of 25 additional cases were used as normal controls. Seven of these had no evidence of toxemia, because of accidental death. Fifteen died during a surgical operation, or soon after, from shock, and 3 were new-born infants who died of congenital defects. In none of these control cases was there any evidence of cellular or acinar change.

From the appearance of the lesion described a question might be raised as to the possibility of this being due to obstruction of pancreatic ducts. It is difficult to prove definitely that it is not, but from serial sections thus far studied I can say that no evidence of obstruction could be found. Granted that an obstruction were found, the lesion still has the appearance of a degeneration, and I believe it should be so considered.

The question of postmortem autolysis might be raised, but this does not produce acinar dilatation, and when present the degeneration is more uniformly distributed throughout the section.

Summary

The pancreatic glands of 100 cases in which there was definite evidence of toxemia were studied. In these a definite, non-inflammatory degenerative change was present in the acinar portion of the gland. The extent and degree of degeneration appears to be proportional to the duration of the symptoms. For this pathologic condition I wish to suggest the term "pancreatosis."

PNEUMONIA IN THE DISTRICT OF COLUMBIA*

Harry F. Dowling, M.D.

Clinical Instructor in Medicine, George Washington University School of Medicine

The value of specific serum in the treatment of pneumonias caused by pneumococci of certain types, is now an established fact. Accordingly, interest now centers upon the incidence of pneumonia in each locality and whether the pneumonias are caused by organisms for which we have effective sera.

Most of the statistical investigations concerning the causative agents in pneumonia have come from cities where the climate was more rigorous than it is in the District of Columbia. In association with this fact, the opinion has arisen among local observers that pneumonias in Washington are caused mostly by atypical types of pneumococci, or even by streptococci (Randolph). Such an opinion has led to a lack of interest in the typing of pneumonias with the result that only a small proportion of the patients who might be treated specifically with serum actually receive the benefit of this measure.

---

* Read before the Society, October 16, 1935.

Inasmuch as the author's clinical observations and laboratory findings have been at variance with the viewpoint outlined above, and because of the importance of pneumococcus typing and serum treatment in suitable cases, I have undertaken to investigate a group of pneumonias occurring in the District of Columbia in order to determine: (1) The incidence of pneumonia as compared with that in other cities, (2) whether the same organisms cause pneumonia in this city as elsewhere, and (3) what percentage of these organisms belong to treatable types.

TABLE 1

Pneumonias in the District of Columbia for the Year 1934

	LOBAR PNEUMONIA	BRONCHOPNEUMONIA	TOTAL
Number of cases reported	620	634	1,254
Number of deaths reported	317	336	653
Estimated number of cases (on the bases of 30 per cent mortality)	1,068	1,112	2,180
Number of cases per 100,000 of population (estimated population for 1934—497,000)	215	224	439

The records of the Health Department of the District of Columbia show that for the year 1934 there were reported 1,254 cases of pneumonia, of which 634 were diagnosed as bronchopneumonia and 620 as lobar pneumonia (Table 1). During this same year, 653 deaths from pneumonia were reported, 317 of these having been due to lobar pneumonia. If these figures were to be taken at their face value, the mortality from pneumonia would have been over 50 per cent for the year in question. The obvious explanation of this unusual mortality figure is that many of the milder cases which recovered were not reported at all.

In order to obtain a more accurate mortality rate, all the cases of pneumonia admitted to the Garfield Memorial and George Washington University Hospitals during the same year, 1934, were reviewed. There were 76 cases of pneumonia in the two hospitals, of which 53 recovered and 23 died, a mortality of 30.3 per cent. Using this figure, which compares closely with statistics from other cities on larger groups of cases, as the approximate mortality rate for the entire District of Columbia, I estimated, from the reported number of deaths as a basis, that there were about 2,180 cases of pneumonia in the city for the year 1934 (Table 1).

The statistics from both the Health Department and the records of the two hospitals investigated showed that 49 per cent of all the pneumonias were lobar in distribution. Applying this percentage to the estimated total number of cases, I obtained 1,068 cases of lobar pneumonia for the City of Washington for the year 1934, or approximately 1 case to every 500 persons residing in the city.

TABLE 2

Cases of Pneumonia in Garfield Memorial and George Washington University Hospitals from July 1, 1933, to June 30, 1935

ETIOLOGIC AGENT	LOBAR PNEUMONIA		BRONCHOPNEUMONIA		TOTAL
	Recovered	Died	Recovered	Died	
Pneumococcus	25	10	0	0	35
Staphylococcus	0	0	1	0	1
Streptococcus	0	0	0	5	5
Not determined	27	15	65	25	132
Total number of cases	52	25 (32.5%)	66	30 (31.3%)	173

The few foregoing figures will suffice to show the importance of the disease in the District of Columbia. Now, what of its course and outcome? How do the etiologic agents compare with those found elsewhere; and is the disease inclined to be as severe as it is in Boston and New York? With these questions in mind, the records of all the cases of pneumonia admitted to the Garfield Memorial and George Washington University Hospitals for the 2 years from July 1, 1933, through June 30, 1935, were reviewed.

The results, as shown in Table 2, indicate that during this period there were 173 cases of pneumonia admitted to the 2 hospitals, of which 77 were classified as lobar pneumonia and 96 as bronchopneumonia. Twenty-five of the patients with lobar pneumonia died, a mortality of 32.5 per cent, while 30 (31.3 per cent) of the bronchopneumonias were fatal.

Pneumonia statistics are of little value, however, unless a determination of the etiologic agent has been made, since pneumonias are nothing more than a group of diseases caused by various micro-organisms and differing markedly in their symptomatology and prognosis according to the different causative agents.

Of the total number of cases of pneumonia occurring in both hospitals during the 2-year period (173), the etiologic agent was determined in 41 cases, or 24 per cent. In contrast to this, an X-ray film of the chest was requested in 87, or 50.3 per cent, of the 173 cases. While recognizing the value of a roentgenogram in cases of pneumonia, I feel that the determination of the causative agent is at least equally important; yet it was considered necessary in only half as many cases. In view of the valuable information which the determination of the type of pneumococcus furnishes with regard to prognosis and especially with regard to treatment, the proportion of cases in which this procedure is performed should approach 100 per cent instead of 24 per cent, as at present.

It will be noted from Table 2 that all of the pneumonias which were lobar in distribution were caused by pneumococci. This is contrary to the opinion held by some clinicians that lobar pneumonias in the District of Columbia are usually caused by the streptococcus. If this were true, the pneumonias in Washington would be unique, since observers in other cities of the United States have found that the pneumococcus is the major incitant of lobar pneumonia—a viewpoint with which my findings coincide.

I shall now consider only the lobar pneumonias in which the type of infecting pneumococcus was determined. There were 24 cases of pneumococcus lobar pneumonia in Garfield Memorial Hospital and 10 cases in the George Washington University Hospital during the 2 years investigated, in which this procedure was done. Five cases treated personally in the District of Columbia during the past year have been added, making a total (excluding duplications) of 37 cases. These are listed in Table 3, from which it can be seen that 12 cases out of the 37 (32 per cent) were caused by the pneumococcus Type I. There is included in Table 3, for purposes of comparison, the type distribution in 963 cases of pneumococcus pneumonia from the Boston City Hospital reported by Sutliff and Finland. It will be seen that the percentage of Type I pneumonias in the larger series was almost identically the same (31 per cent).

TABLE 3

LOBAR PNEUMONIAS IN WHICH THE TYPE OF INFECTING PNEUMOCOCCUS WAS DETERMINED

PNEUMOCOCCUS TYPE	CASES IN PRESENT SERIES		BOSTON CITY HOSPITAL CASES (REPORTED BY SUTLIFF AND FINLAND)	
	Number	Per cent	Number	Per cent
I	12	33	302	31
II	3	8	157	17
III	3	8	153	16
V	1	3	48	5
VII	2	5	48	5
Other Group IV Pneumococci	16*	43	255	26
All pneumococcus pneumonias	37	100	963	100

* All of these cases were not investigated for the presence of Type V and Type VII pneumococci.

The three types of pneumococci for which specific antisera are available for treatment (Types I, II and VII) together were responsible for 17, or nearly one half of all the typed cases. In view of the fact that, in many instances, the immediate method of typing (Neufeld) alone was used, it is quite probable that, if the cases in which Types I, II or VII pneumococci were not found had been checked by the usual mouse method, more cases belonging to those types would have been found. Furthermore, in spite of the fact that there are too few cases shown to be caused by any of the types except Type I to be statistically significant, still the series does show that these other types cause pneumonia in the District of Columbia just as they have been found to do elsewhere.

The mortality rate for the lobar pneumonias not treated with specific antiserum was 32 per cent. The death rate for 1,107 untreated cases reported by Cecil, Baldwin and Larsen from the Bellevue Hospital, New York City, was 30.8 per cent. Thus the death rate, the most rigid measure of the severity of a disease, was practically the same for both cities. Other important measures of the severity of pneumonias are the number of lobes involved, the number of complications, and the presence or absence of bacteriemia.

In the series reviewed by me, 24 of the 37 cases were unilobar in distribution, 5 affected 2 lobes, and in 8 cases there was consolidation of 3 or more lobes. Purulent complications developed in 8 of the 37 cases in the series. These included empyema (3 cases), phlebitis (2 cases) and 1 case each of meningitis, peritonitis and otitis media with mastoiditis.

TABLE 4

Results of Blood Cultures, Pneumococcus Pneumonias

	CASES RECOVERED	CASES DIED	PER CENT MORTALITY
Blood culture positive	2	3*	60
Blood culture negative	8	1	11
Total	10	4	29

* Two of these were postmortem heart's blood cultures.

The results of blood cultures in the 14 cases in which they were obtained are presented in Table 4. Five cases showed positive blood cultures, an incidence of 36 per cent. Cecil, Baldwin and Larsen found that 24 per cent of the blood cultures taken from 326 cases of pneumococci pneumonia were positive. The death rate was much higher in the cases with positive blood cultures (60 per cent) than in the cases with negative blood cultures (11 per cent). It is generally known among workers studying pneumonias that the death rate in patients with an accompanying bacteriemia is 4 or 5 times as high as in patients having no organisms in the blood stream. From the standpoint of prognosis, therefore, the blood culture in pneumonia is the most important single laboratory test.

Five of the patients were treated with adequate doses of Felton's concentrated antipneumococcus serum. Although this is too small a number to be statistically significant, the fact that none of these patients died is worthy of note, in view of the mortality of 33 per cent among the non-serum-treated pneumonias caused by the same types of pneumococci (Types I, II and VII).

Summary and Conclusions

1. Lobar pneumonia is approximately as prevalent in the District of Columbia as in cities farther north, there being about 1 case per year among every 500 persons.
2. The pneumococcus is the chief etiologic agent in lobar pneumonia in the District of Columbia; and the disease is caused by the types of pneumococci that commonly cause lobar pneumonia elsewhere.
3. At least one half of all the lobar pneumonias in the District of Columbia are caused by types of pneumococci against which specific therapeutic antisera are available.
4. Physicians are urged to think of their cases in terms of etiology, which means that every case of pneumonia should be typed, and typed early, so that specific serum may be made available where it will help, and at the time when it will be most effective.

N.B.—For further information concerning the rapid diagnosis and serum treatment of pneumonia see author's article in *Medical Annals of the District of Columbia*, 1935, Volume 4, page 66.

BIBLIOGRAPHY

Cecil, R. L., Baldwin, H. S., and Larsen, N. P.: Lobar Pneumonia; Clinical and Bacteriologic Study of 2,000 Typed Cases. Arch. Int. Med., 1927, **40**, 253.

Randolph, B. M.: Cardiovascular Problem in Pneumonia. Arch. Int. Med., 1929, **43**, 249.

Sutliff, W. D., and Finland, M.: Significance of Newly Classified Types of Pneumococci in Disease; Types IV to XX, Inclusive. J. A. M. A., 1933, **101**, 1,289.

The Fundamentals of Internal Medicine*

DISEASES OF THE NERVOUS SYSTEM

(*Continued from October, 1935*)

ANTOINE SCHNEIDER, M.D.

Professor of Neurology, Georgetown University School of Medicine

ARTERIOSCLEROTIC CEREBRAL VASCULAR DISEASE

Etiology. This condition, which is seen so frequently in the decades after the fifth, depends upon progressive sclerotic changes in the cerebral arterial system, principally in the smaller vessels. The exact nature of the process that gives rise to this pathological manifestation is as yet unknown. It often accompanies manifestations of vascular sclerosis elsewhere in the body, but occasionally it is strikingly absent even in the presence of marked peripheral and visceral arteriosclerosis of other organs. On the other hand, there may be discrete areas of cerebral arteriosclerosis without sclerotic lesions elsewhere. Very frequently it is accompanied by hypertension of moderate or marked degree, but almost as frequently an increase in blood pressure is not noted. The condition commonly begins after the age of 50, and when present before this age period it is apt to be more serious in nature and more fulminating in course. After the age of 70 it is an almost universal condition, although clinical symptoms may be minimal. Cardiorenal disease is another frequent accompaniment of cerebral arteriosclerosis, but again no distinct causal relationship can regularly be determined.

Physiological and Pathological Considerations. As in all other forms of cerebral vascular disturbance, the presenting symptomatology depends upon the location and extent of the lesion. The pathological process is one of gradual hyalinization of the vessel walls associated with proliferation of the intima and the formation of fibrous tissue. This latter process is most marked at first between intima and media, but eventually includes all coats of the vessel. Still later, calcium may be deposited within the hyaline plaques, and a true pipe stem appearance may result. Accompanying the progressive hyalinization and calcification there is at first a gradual loss of elasticity of the vessel walls. The lumen becomes narrower, and mural thrombi may form at the site of intimal destruction. Again two pathological end-results may occur—either vascular occlusion by thrombus formation, or rupture of the vessel wall itself with variable degrees of hemorrhagic extravasation. The commonest site of vascular involvement is, as in other cerebral vascular lesions, the middle cerebral artery and its branches.

Symptoms and Signs. While it is true that well-marked objective clinical signs depend upon the type, location and extent of the disease process, the prodromal symptoms indicate, as a rule, some degree of generalized cerebral vascular involvement. These are of the type suggestive only of cerebral vascular disease in general, the etiological determination resting on other factors. Among the earliest symptoms are those of headache, insomnia, irritability, vertigo, and memory defects, particularly for recent events. Facetiousness, euphoria and emotional lability are fairly common symptoms. At times convulsions are a prominent feature, but these appear to occur principally when a fairly well-marked hypertension accompanies the sclerotic condition. Finally, the focal signs appear and differ in no way from those due to other cerebral vascular lesions. Hemiplegia is extremely frequent and is most often rather sudden in onset. When due to cerebral hemorrhage it often follows such episodes as undue exertion, straining at stool and heavy lifting. At other times a hemiplegia, monoplegia or aphasia may be noticed on arising in the morning, and these are most often the result of arterial thrombosis. The objective signs are quite typical but vary with the stage of the process. During the early stage of generalized symptoms it is common to find only ophthalmoscopic evidence of retinal arteriosclerosis or some reflex changes of variable degree. At the time of a sudden apoplectic attack there is loss of consciousness as a rule. This may be slight and transient, or may be an actual lengthy, deep coma. It is accompanied often by depression of the pulse rate and blood pressure, respiratory irregularity and incontinence. The pupil on the side of the lesion is often dilated, and the eyes are frequently deviated toward that side. During this stage, which may be called the stage of shock, the deep and superficial reflexes are abolished. Lumbar puncture usually reveals an increased intracranial pressure, and the presence of fresh blood in the cerebrospinal fluid. With return of consciousness, the reflexes gradually reappear, then become hyperactive; abnormal reflexes such as Babinski's sign may be elicited on the affected side, and spasticity sets in. The blood in the spinal fluid becomes hemolyzed and the fluid presents a yellowish or xanthochromic appearance. The spasticity usually affects the upper extremity more than the lower. The arm is held adducted to the trunk, and the forearm and fingers are flexed. The lower extremity is also spastic, but it is usually held in extension and is stiffly circumducted in walking. Bloody spinal fluid is not as common in cerebral arterial thrombosis as in cerebral hemorrhage, the onset is usually not as abrupt, stiffness of the neck is not so frequent, and the positive Babinski sign is not as often elicited.

---

* This is the second instalment of a treatise on Diseases of the Nervous System prepared to orient the older graduates of medicine in the changing concepts of diseases of the nervous system and to review the subject for younger graduates. Other instalments will follow until completion.

Mention must also be made of certain clinical pictures seen in chronic cerebral arteriosclerosis and in which dramatic paralytic phenomena may be absent. That of pseudobulbar palsy depends upon multiple bilateral foci of softening and is characterized by difficulty in deglutition, phonation and mastication. These are frequently transitory phenomena but have a distinct tendency to recur. When the arteriosclerotic process affects mainly the basal ganglia and the extrapyramidal system, symptoms referable to these centers appear. They are usually in the nature of either tremors or rigidity and strongly resemble certain manifestations of chronic encephalitis. As a general rule, there is present both rigidity and tremor. The patients appear to be cast "en bloc," walk with very short steps, are generally spastic and stooped, and show little play of facial expression. There is a rhythmic pill-rolling tremor of the hands and very often constant nodding of the head.

Arteriosclerotic changes in the spinal cord are characterized by their diffuseness and multiplicity of signs and symptoms referable to widely scattered lesions in both gray and white matter. It is frequently impossible to distinguish cord from cerebral lesions in these cases.

Course and Prognosis. The clinical course of cerebral arteriosclerosis is usually progressively down-hill, although very frequently remissions, and improvement that is very difficult to understand, may set in for considerable periods. The eventual prognosis is bad. In the acute hemorrhagic cases the immediate prognosis may be approximately judged by the duration and depth of the coma. In general, the longer the period of unconsciousness, the poorer the outlook. It must be remembered, however, that following recovery of consciousness the initial degree of paralysis is always more than the final residual disability, since a certain degree of improvement follows the subsidence of the cerebral edema and partial absorption of the clot. Since the underlying pathological process is progressive, it is common to find repeated cerebral vascular accidents in the arteriosclerotic individual, and such repetitions may be confidently predicted.

HYPERTENSIVE CEREBRAL VASCULAR DISEASE

Etiology. The etiology of hypertension, as of arteriosclerosis, is unknown. Long-standing hypertension per se, without accompanying sclerotic changes, is rare indeed. In general, however, those cases considered to belong to the group of hypertensive encephalopathies are characterized by rather marked hypertension with sclerotic changes that are not as pronounced as in the arteriosclerotic group. It is frequently seen in young individuals, particularly those of the negro race, who exhibit other findings characteristic of the so-called 'essential' type of hypertension.

Physiological and Pathological Considerations. Strictly speaking, hypertension in the absence of sclerosis shows no typical pathological picture. Actually, however, there is an accompanying sclerosis entirely similar in nature to that previously described. The abnormal physiology of the condition, on the other hand, is extremely interesting. It has frequently been noted at autopsy that patients who showed no obvious occlusion or hemorrhage involving even the smaller branches of the cerebral vessels had a history of one or several apoplectiform attacks, obviously of cerebral vascular origin, from which they had recovered practically completely and which had persisted for only a comparatively short time. In view of recent additions to our knowledge of the morphology and physiology of the cerebral circulation and proof of the existence of vasoconstrictor fibers in the walls of cerebral blood vessels, it appears quite probable that cases of hypertensive encephalopathy are peculiarly prone to attacks of transient cerebral vascular spasm. These vascular crises produce such symptoms as hemiplegia, monoplegia, aphasia, hemianopsia, and sensory disturbances that are fleeting in nature and probably depend upon transient, localized, cerebral edema and not upon persistent pathology.

Symptoms and Signs. As has been mentioned in the previous paragraphs, certain transitory phenomena occur that at first suggest serious cerebral disturbance. These may also simulate purely mental conditions. Change in reflexes may be noted, and abnormal reflexes may make a brief appearance. Headache is a particularly common complaint. Examination of the ocular fundi usually gives a clue to the diagnosis. The retinal vessels show constriction of the arteries with increase in the light reflex, engorgement of the retinal veins and arteriovenous compression. A certain degree of retinal edema is often present and may simulate the picture seen in intracranial tumor. Very often a discernible hypertension appears only after clinical symptoms of cerebral vascular spasm have been present for some time. When the condition has progressed to the point where arteriosclerosis is also well established the clinical syndrome closely resembles that seen in cerebral arteriosclerosis with, however, a tendency toward acute hemorrhagic manifestations.

Course and Prognosis. As in all of the cerebral vascular diseases that are not of syphilitic etiology and are not amenable to operation, the course of this condition is progressive. Remissions may occur, but the eventual outlook is extremely serious.

EMBOLIC CEREBRAL VASCULAR DISEASE

Etiology. Cerebral embolic phenomena depend for their production upon the presence of foreign bodies in the cerebral circulation which occlude arteries of various sizes and cause infarction of the parenchyma. These foreign bodies are of two types, those originating within the body itself and those introduced from without. By far the commonest causes of cerebral embolism are fragments of vegetations dislodged from heart valves in cases of bacterial endocarditis. The primary cardiac condition most often seen in this connection is that of moderate mitral stenosis. In view of this fact it is easy to understand the prevalence of cerebral embolism in the younger age groups. Occasionally a portion of a mural thrombus in the left auricle, the left ventricle or a large vessel may be detached to lodge in, and occlude, a smaller vessel. Fat particles are sometimes set free following fractures and may act as cerebral emboli. Air embolism may follow injuries or operations on the neck. In caisson disease or divers' paralysis too rapid decompression causes the formation of bubbles of nitrogen in the blood, and these lodging in the blood vessels of the cord and brain also act as emboli.

Physiological and Pathological Considerations. The rules governing the disturbance of function in cerebral embolic conditions are similar to those in other cerebral vascular lesions, depending upon the cause, extent and location of the disease process. In comparison with other vascular disturbances the lesions resulting from embolism are generally rather small, since the emboli themselves are often small and lodge usually in the terminal branches of the cerebral blood vessels. The vessels most commonly affected are those supplying the internal capsule and the corpus striatum. At other times the small arteries of the pons, midbrain and peduncles may be affected. Not infrequently small emboli have been found in silent areas of the brain that have been shown to be quite asymptomatic. Pathologically the picture is that of small areas of hemorrhage in the region of the embolus that coalesce to form larger hemorrhagic masses. In the same region non-hemorrhagic infarcts may be seen. In the case of fragments of vegetations from heart valves, the embolus may contain bacteria which sometimes give rise to a secondary localized or diffuse encephalitis or minute brain abscesses. Occlusion of a large vessel, however, rarely causes an abscess, although clinically an abscess may be simulated. A large infarct may become liquefied.

Symptoms and Signs. In cerebral embolism the onset of symptoms is always acute. There is frequently a sudden sharp pain in the head followed by weakness or paralysis of a limb or whole side of the body. At other times there may occur an equally sudden facial paralysis or severe vertigo. When a limb has been affected it is at first flaccid and quite commonly shows definite edema. This neurogenic edema may persist for several days. Paralysis following cerebral embolism is usually more complete and recovery slower and less complete than in other cerebral vascular accidents. When the lesion has implicated subcortical structures, as it commonly does, the initial flaccidity is followed eventually by spasticity. Reflexes that were at first absent reappear and become hyperactive. At other times flaccidity persists, indicating that the lesion was predominantly cortical. Should the embolus involve structures in the brain stem, an alternating paralysis with affection of the cranial nerves on one side and hemiplegia on the other, may result. Depending upon the basic etiological factor, other findings may appear upon physical examination. In bacterial endocarditis a cardiac murmur or thrill or other signs of cardiac disease may be evident. Fever, leukocytosis, splenomegaly, petechiae and a positive blood culture may be elicited. Occasionally small emboli may be made out in the retinal vessels, but this is rather uncommon. Cerebral embolism rarely results in such severe phenomena as profound or long-continued coma, since the area involved in the process is usually much smaller than in cerebral hemorrhage or thrombosis.

Course and Prognosis. The rarer types of cerebral embolism such as those seen in caisson disease and air embolism are seldom fatal, usually recover completely, and show no tendency to recur. In embolism associated with endocarditis, however, the situation is naturally more serious, since the source of supply of further emboli cannot be eradicated. Frequent cerebral emboli are fairly common, but in general the patient succumbs, not as a result of the cerebral insults, but to the progressive anemia and toxemia associated with the cardiac condition.

CONGENITAL CEREBRAL VASCULAR DEFECTS

Etiology. From the point of view of relative incidence, the most important of these conditions are the congenital aneurisms. They are frequently found in young individuals with no evidence of syphilis, hypertension or arteriosclerosis. Only recently have they been considered, as they most properly should be, as of congenital origin. Angiomas and hemangioblastomas are naturally considered to be congenital in view of the fact that they have been found in very young individuals, are independent of trauma and infection, and are frequently associated with vascular abnormalities, such as nevi, elsewhere in the body.

Physiological and Pathological Considerations. Cerebral aneurisms are saccular dilatations of cerebral blood vessels that may grow to large size. As a rule, however, they are rather small and show a startling predilection for certain locations. They practically never affect the vessels within the cerebral substance proper, but are most often seen in the vessels of the base of the brain, particularly the circle of Willis, at angles of bifurcation. Defects in the media have often been detected in the vessels at these points. The production of symptoms depends upon two possible pathological bases, the one, sudden rupture, the other, pressure upon adjacent structures. Angiomas are tangled congenital malformations of the cerebral vessels, the walls of which frequently show calcareous deposits. They, too, may rupture, or, by their growth and pressure on underlying structures, may cause focal symptoms. They are usually located on the surface of the brain in the region of the rolandic fissure. The hemangioblastomas, although true congenital vascular abnormalities, are also true tumors, and will be considered as such.

Symptoms and Signs. Cerebral aneurisms very frequently give rise to no symptoms until they rupture. There is then sudden excruciating headache, loss of consciousness and marked rigidity of the neck. A large amount of free blood in the spinal fluid is an almost constant finding. Physical examination is usually negative for other evidence of vascular involvement. The eye grounds at first show nothing unusual, but later they may show some edema and venous engorgement. The deep reflexes are usually lost. Rarely, on auscultation of the skull, a murmur may be heard that disappears on compression of the carotid arteries. At other times the aneurism may betray itself by fleeting paralyses which probably depend upon intermittent leakage. Pressure symptoms depend upon the structures involved by the growing aneurisms. Aneurisms of the anterior cerebral artery may manifest themselves by unilateral optic atrophy and anosmia. Aneurisms of the internal carotid frequently give rise to extra-ocular muscle paralysis. The angiomas are usually characterized by irritative phenomena such as jacksonian convulsions and localized choreo-athetoid movements of extremities. Since they are found most often over the surface of the brain, they may occasionally be detected by auscultation. An X-ray film of the skull may also reveal localized erosion of the inner table. After rupture, it is clinically impossible to distinguish them from other massive cerebral hemorrhages of different etiology.

Course and Prognosis. With an understanding of the underlying pathological factors involved, it must be quite obvious that cerebral aneurisms, even if discovered before their rupture, present an extremely serious problem. Any increase in arterial pressure is quite apt to cause a fatal hemorrhage. Should recovery follow rupture of the aneurism, another hemorrhage is practically bound to supervene at an early date. Cerebral angiomas may occasionally be controlled by ligation, but, unless the angioma be located in a comparatively silent area, a certain degree of motor paralysis or sensory disturbance must be the inevitable result.

SUBARACHNOID HEMORRHAGE

Etiology. The causes underlying this common clinical entity are several. There is no single etiological agent that can be implicated in all cases, and it is encountered as a fairly well defined syndrome in the course of a number of the common cerebral vascular diseases. Congenital cerebral vascular defect, hypertension and arteriosclerosis are the conditions most often found to accompany this particular expression of vascular disturbance.

Physiological and Pathological Considerations. Subarachnoid hemorrhage results from rupture of small superficial cerebral vessels, usually those located on, or very close to, the surface of the brain. The rupture itself may be due to congenital defect in the vessel wall, to weakness resulting from long-standing hypertension, or to the lesions consequent upon arteriosclerotic changes. The extravasated blood flows into the subarachnoid spaces, following the course taken by the cerebrospinal fluid in its circulation. The results are usually irritation of the meninges, the formation of meningeal adhesions, and a certain degree of interference with the normal circulation of the cerebrospinal fluid. Adhesions about the base of the brain are a particularly frequent sequela. The foramina of Magendie and Luschka may be partially blocked, and it has been definitely demonstrated histologically that the liberated red blood cells circulating with the cerebrospinal fluid clog the pacchionian granulations and prevent or slow the passage of cerebrospinal fluid into the great venous sinuses. A condition of chronically increased intracranial pressure with moderate secondary hydrocephalus may result.

Signs and Symptoms. One usually obtains a history of sudden pain in the head, most often the occipital region, that often follows undue exertion. Loss of consciousness is rare, but nausea, vomiting and vertigo are common. Following these manifestations, the commonest complaints are stiffness of the neck and visual disturbances. These latter are principally in the nature of blurring of vision and intermittent diplopia. Vertigo and vomiting may persist, both most marked on sudden change of position. Headache, variable in degree and usually occipital in location, is an almost constant symptom. Weakness or paralysis of the external rectus muscle is, after neck rigidity, the commonest of the objective physical findings. Paralysis of the extremities and persistent sensory disturbances are rare. The deep reflexes are seldom disturbed, but superficial reflexes may be abolished for a time. The fundi may, after a certain lapse of time, show a low grade edema. Evidence of hypertension or of retinal arteriosclerosis may be present. Immediately after the accident the cerebrospinal fluid is found to be uniformly bloody, and its pressure is practically always definitely increased. After several days the fresh blood disappears and the fluid assumes a yellowish tint. The protein content is naturally raised, but sugar and chlorides show little or no change.

Course and Prognosis. The clinical course of untreated subarachnoid hemorrhages is often stormy, but practically never fatal. Severe pain in the occiput and cervical region may continue for a long time, as well as vertigo and visual disturbances. With the establishment of meningeal adhesions, chronic, intractable headache is frequent. Fleeting slight motor and sensory disturbances may simulate a purely functional condition.

DIAGNOSIS OF CEREBRAL VASCULAR DISEASES

The diagnosis of cerebral vascular diseases is, in itself, not difficult in the majority of cases. It is based upon the two essential factors of a careful history and a painstaking examination. All of the etiological types have certain symptoms and signs in common. These are objective, or valid subjective, evidence of impairment of function of the central nervous system, accompanied by evidence of vascular disease and exclusion of other possible etiological factors.

Syphilitic Cerebral Vascular Disease. The history of gradually progressive weakness of one side of the body, preceded perhaps by headache or vertigo, in any patient under 45, demands that syphilis be ruled out. The diagnosis may be made on the basis of a history of syphilis, positive Wassermann or Kahn reactions in the blood or spinal fluid, or by such pupillary disturbances as the Argyll Robertson pupil or the paradoxical pupillary reaction. This latter reaction, which is almost conclusive proof of syphilis, consists in dilatation, instead of contraction of the pupil to light. At times the diagnosis must be made on the age of the patient and the exclusion of other possible causes. Hypertension and arteriosclerosis may usually be ruled out by means of the sphygmomanometer and the ophthalmoscope. The absence of choked disc or of increased pressure of the spinal fluid is strong evidence against tumor. It should, however, be borne in mind that other pathological processes may co-exist with cerebral vascular syphilis, and the progression or continuation of symptoms, after a reasonable period of treatment, should raise this suspicion. Several cases of syphilis have recently been seen with progressive symptoms that were found to be due to brain and spinal cord tumors.

Arteriosclerotic Cerebral Vascular Disease. The principal bases for this diagnosis are the age of onset, which is usually after 50, the history of physical and mental impairment with accompanying complaints of headache, vertigo and sensory disturbances, and, above all, visible or palpable evidence of arteriosclerosis elsewhere. Signs of retinal arteriosclerosis are particularly important in view of the almost constant connection of cerebral with retinal arteriosclerosis. Notwithstanding occasional remissions the course is usually progressive. The onset of hemiplegia or of other focal signs is comparatively rapid, even in cerebral thrombosis, and a gradually increasing involvement of a limb or whole half of the body should raise the question of cerebral tumor, even in the absence of obvious signs of increased intracranial pressure. Under such circumstances lumbar puncture, with careful pressure readings, and even air injection should be considered.

Hypertensive Cerebral Vascular Disease. This diagnosis obviously depends principally upon the presence of increase in the blood pressure and signs of cerebral involvement. The occurrence of convulsions in young adults should suggest this possibility, as well as other transient phenomena of cerebral origin. The absence of hypertension early in the course of the disease does not necessarily militate against the diagnosis, and in such a case the presence of sclerotic changes in the vessels of the retina may allow one to decide that hypertension has existed.

Embolic Cerebral Vascular Disease. The history and physical findings of endocarditis, the youth of the patient and signs of motor or sensory involvement of sudden onset are practically pathognomonic of this condition.

Congenital Cerebral Vascular Defects. The diagnosis of these conditions, particularly the aneurisms, can often be made only at autopsy. However, the sudden onset of coma in a young person, with no history or findings of syphilis, hypertension or trauma, and the appearance of large quantities of blood in the spinal fluid are extremely suggestive. This is also true of progressive involvement of the structures at the base of the brain in the region of the circle of Willis. Angiomas may occasionally be picked up by the presence of localized, uncontrollable movements of a limb, a murmur on auscultation of the skull, or suggestive findings in the X-ray film.

Subarachnoid Hemorrhage. The diagnosis is based on the history of sudden, severe pain, usually in the occipital region, nausea and vomiting, vertigo and the objective findings of stiffness of the neck and bloody spinal fluid under increased pressure. Other evidence of cerebral vascular disturbance may, or may not, be present.

TREATMENT OF CEREBRAL VASCULAR DISEASES

Syphilitic Cerebral Vascular Disease. The treatment of cerebral vascular syphilis, when instituted in the early stage of the disease and thoroughly pursued, produces on the whole excellent results. The best drugs available are still arsphenamine, mercury and bismuth. Potassium iodide is a useful adjunct. It is probably best to precede the administration of arsenicals by mercury or bismuth. Mercury may be given by inunction, but this is a rather disagreeable process. It is easier given by 1 grain of the salicylate (0.03 to 0.06 gram) each week until about 6 grains (0.4 gram) have been given. Bismuth may be substituted but both should be accompanied by potassium iodide, 10 to 30 grains (0.65 to 2 grams), 3 times daily. A short rest period of several weeks may be given before beginning the administration of arsphenamine, although the modern tendency has been to eliminate this. An initial dose of 0.2 gram of neoarsphenamine, increasing gradually to 0.4 or 0.6 gram is given. This is continued for about 8 weeks when bismuth or mercury is again resumed. Treatment should be continued for at least 18 months and even longer if there is still clinical or laboratory evidence of activity. It should be remembered that certain cases, particularly old ones, will show residual neurological symptoms, and these may well be permanent.

Arteriosclerotic Cerebral Vascular Disease. It is unfortunately true that no specific medication is available for the treatment of such a prevalent condition. It is of the utmost importance to consider the patient as a psycho-biological whole and in relation to his environment, rather than as an example of a mere clinical entity. Psychotherapy with reassurance and encouragement are always indicated. Worry should be relieved whenever possible, and reasonable limitation of activity recommended. This latter should never extend to the point of establishment of a chronic invalid reaction with its misery of morbid introspection, but one should consider the patient's previous habits and the extent of his drive toward continued activity. It is a difficult course to steer, and each individual must be considered separately. Mild sedatives such as phenobarbital and the bromides are frequently indicated and have a definite, albeit non-specific, effect.

Hypertensive Cerebral Vascular Disease. Treatment in these cases is similar to that in the arteriosclerotic group. One is limited mainly to treatment by general hygienic measures, the abolition of strenuous exercise and encouragement in relaxation. In the acute apoplectic conditions, lumbar puncture and the intravenous injection of hypertonic solutions help in reducing cerebral edema and may hasten the return of consciousness.

Embolic Cerebral Vascular Disease. This condition can be treated only symptomatically, and that by complete rest and sedatives in sufficiently large doses.

Congenital Cerebral Vascular Disease. The only treatment for ruptured cerebral aneurism is complete rest. More active therapy is ill-advised. The withdrawal of fluid by lumbar puncture is always contraindicated, since the resultant slight shift in intracranial contents may be just enough to cause resumption of the bleeding.

Subarachnoid Hemorrhage. The essential feature of the treatment of subarachnoid hemorrhage is frequent lumbar puncture. There is no evidence to show that this procedure causes renewed intracranial bleeding, and on the other hand there is a great deal of evidence to prove its clinical value. Headache and stiff neck are relieved, the free blood that acts as an irritant and the possible source of future meningeal adhesions is removed, and the intracranial pressure is reduced to normal. Several punctures are usually necessary, but as a general rule improvement is steady. Mild sedatives may be used if indicated.

(To be continued)

Cardiovascular Review for 1933. (Thromboangiitis Obliterans) *Tobacco.* Harkavy has found that 76 out of 87 cases of thromboangiitis obliterans between the ages of 22 and 58 were hypersensitive to various tobacco extracts, an incidence of 87 per cent, while "out of 272 male cigarette smokers used as controls, 43 were positive, an incidence of 16 per cent. . . . Study of 36 cases of coronary artery disease all of whom were smokers with the syndrome of angina pectoris indicated that 13 (36 per cent) were tobacco sensitive. The average age of the patients who reacted to tobacco was 45. . . . The average of the coronary patients who failed to react to tobacco was 60."

Sulzberger has published the following table giving the comparison between immediate wheal reactions to tobacco in patients with heart disease in a general hospital population excluding thromboangiitis obliterans:

	TOTAL NUMBER EXAMINED	POSITIVES	NEGATIVES	PER CENT POSITIVE
Hypertensive and Arteriosclerotic Heart Disease	35	6	29	17 plus
Rheumatic Heart Disease	38	10	28	26 plus
Total Heart Disease	73	16	57	22
General Hospital Population	153	43	110	28
Thromboangiitis Obliterans	13	10	3	77

HARKAVY, J.: Tobacco sensitiveness in thromboangiitis obliterans, migrating phlebitis, and coronary artery disease. Bull. N. Y. Acad. Med., 1933, 9, 318.
SULZBERGER, M. B.: Recent immunologic experiments in tobacco hypersensitivity. Bull. N. Y. Acad. Med., 1933, 9, 294.

(Acetyl Choline). *Other Effects.* Carmichael and Fraser studied the effects of acetyl choline given intravenously in 46 human subjects. Doses of 0.01 to 0.03 gram were necessary to produce cardio-inhibitory effects, which appeared 5 to 10 seconds after the injection and lasted for a few seconds only. "The slowing of the heart is followed by a rise of rate above the original level, with a return to normal usually in a half to one minute after the injection. The systolic and diastolic blood pressures fall during the phase of slow heart rate, but return to the original level or a little higher during the phase of rapid heart rate. The phase of rapid heart rate is accompanied by flushing of the face, neck and upper thorax, and a feeling of warmth throughout the body. Occasionally there is slight flushing of the limbs and coughing, and a sensation of obstruction to respiration frequently accompanies the phase of slow heart action. The nature and intensity of the response vary in different individuals. The response can be abolished by the previous injection of atropine, but not by the previous injection of adrenaline." . . . *Extract from article by* PAUL D. WHITE, M.D., AND HOWARD B. SPRAGUE, M.D., Boston; *New England Journal of Medicine, December 6, 1934, p. 1,053.*

THE EMBLEMS OF MEDICINE*

A. B. Bennett, M.D.
Washington

The general public is doubtlessly familiar with the devices and emblems attached to doctors' cars, to ambulances and to the uniforms of Medical Officers in the Army. These emblems have been accepted as signifying medicine in its real meaning, which is the art of healing. It should be interesting to every thoughtful person to learn about the origin of these emblems and why they are used by men of medicine.

Man and medicine have marched side by side down through the ages. From the earliest times, and undoubtedly until the end of time, man has and will suffer the pangs of illness, and someone has always been and always will be nearby to minister unto him. Man's history goes back into the days of mythology, when the records were scarce and often recorded in allegorical form. Medicine was there with man in those mythological times. Those were the days when most of life was a mystery and when man in his wonder worshipped that great expanse of his own unknown and called each wonder a god. He had many gods. The emblems of medicine originated in those mythological days of many gods. Medical men are proud to refer back over history to a great physician who lived in the early days of Greece. His tireless life in the service of the sick and his skill in the healing art have placed him forever before us as the Father of Medicine. His name was Aesculapius. He was killed in his prime by a bolt of lightning, and the people of his time immediately translated Aesculapius into a god. They believed that he was the son of their physician god, Apollo. The ancients also believed that the snake had great powers of healing, for they had witnessed the annual casting of the skin by snakes and the snakes renewed in a new skin. This bespoke to them of a complete return of health and vigor and savored of everlasting life. The ancient's sign of healing and of wisdom was the snake. It then can be readily understood why it is that all of the statues and pictures of Aesculapius show him either holding a snake or grasping a stout knotted staff around which is a tightly clinging snake. This staff of Aesculapius was stout so that the lame could lean upon it; it was knotted to indicate the knotty problems of illness; and it has wound about it a snake, the symbol of healing, the renewal of youth and the prolongation of life. There is another significant fact in that the very word Aesculapius in its early derivation means "a creeper," which shows that this age-old tradition brings with it, even in the name of the Father of Medicine, a reference to the ancient faith in the healing power of the snake. Aesculapius had many shrines of healing throughout Greece. The greatest of these was at Epidaurus, and it is recorded that from Epidaurus Aesculapius came to Athens in the guise of a snake. The record also states that over a century later a pestilence came upon the Romans, that they sent to Epidaurus for help, whereupon Aesculapius sailed as a snake in the ship of state back to Italy and up the Tiber to Rome. The snake slipped over the side, swam ashore and arrived at the Parthenon, where it was declared a god, since the pestilence had ceased upon its arrival. This was the first importation of a Greek god by the Romans. With this historical and mythological background physicians naturally feel that they have a unique and incontrovertible right to the use of the staff of Aesculapius as a very significant emblem of the profession of medicine. The stout knotted staff with a single snake closely entwined around it is medicine's oldest emblem. The staff of Aesculapius is the emblem of the Royal Army Medical Corps of England and of the French Medical Military Service. It is emblazoned on the right half of the coat of arms of the Medical Department of the United States Army, and it occupies the center of the insignia of members of the American Medical Association.

The other emblem used by men of medicine is as ancient as the staff of Aesculapius, but its origin was of an entirely different sort. This other emblem is the caduceus, which is a wand or slender staff around which are loosely coiled two snakes and at the head of which are two outspread wings. The definition of the word caduceus comes from the Latin adaptation of the Doric and means herald's wand. The caduceus was given by the god physician Apollo to Mercury upon the appointment by Apollo of Mercury as an ambassador to mediate between the gods and men. It then became the magic wand of Mercury, the heavenly messenger of the gods. The caduceus is a wand made from an olive branch indicating peace. The wand is adorned with two outspread wings at its head to indicate fleetness and speed for the messenger Mercury. The two snakes intertwined about it indicate wisdom for the ambassador or possibly the authority of its donor, the physician god Apollo. The caduceus was given for and used as a herald's wand by Mercury. It gave him safe conduct through the enemy's lines and sped him on his way as the messenger of the gods. There is apparently no mythological indication that the caduceus was ever thought in those days to be an emblem of the healing art. Mercury did avert a plague and is recorded as having assisted in activities associated with medicine, but all gods were accustomed to good deeds at times. However, these particular activities and the belief that his wand was given to him by Apollo probably have given rise in some quarters to the idea that the caduceus has a medical significance. That greatest of the early fighting machines, the Roman Army, used the caduceus with its original meaning, for its heralds as a flag of truce, a symbol of neutral or peaceful transaction between opposing armies on a battle front.

---

* Radio address given over Station W J S V, May 4, 1935. Read before the Society, October 16, 1935.

Leaving mythology and the days of the Roman Army, and racing rapidly over the space of time, we find a very significant event that occurred about 500 years ago. There lived at that time a Swiss printer of medical books named Johann Froben, 1460–1520. He was probably also a close student of the Bible. He evidently decided to place a motto for physicians on the title page of his books, and he chose the Greek original of the well known saying of Christ, "Be ye wise as serpents and harmless as doves." Under this admonition he placed a design in keeping with the motto. The design was a staff with two intertwined snakes about it, surmounted with two doves. In a way this design did resemble the caduceus, but doubtless Froben designed his emblem just to be in keeping with the motto. These Froben books were doubtless sold over all Europe and in England, and, if so, the leading physicians of London probably had them in their libraries. This title page of Froben's may have influenced Sir William Butts, physician to Henry VIII, who, probably having noted its resemblance to the staff of Aesculapius, adopted the caduceus as his emblem for the medical profession. This is the first record of a physician using the caduceus for this purpose. The physician to the King created a precedent, and we find a few years later that Dr. John Caius presented to Gonville and Caius College of Cambridge, England, a silver caduceus as an emblem of medicine. Later, the caduceus again appeared in England as an emblem of medicine, when the medical publisher, J. S. M. Churchill of London, printed it on the title page of his books. Not again in England do we find the caduceus used in medicine until it became the emblem of the medical officers of the Royal Flying Corps.

In the United States Army the caduceus was placed on the chevrons of hospital stewards as far back as 1856. Later, it was placed on the shield of the United States Public Health Service, and in 1902 it replaced the Maltese cross as the collar device of the officers of the Medical Corps of the United States Army. In the United States Army, on the right half of the coat of arms of the Medical Department is emblazoned the staff of Aesculapius, a symbol of the healing art to which that department is devoted, while on the sleeves of its personnel is placed the caduceus, the herald's emblem of safe conduct for the non-combatant on the field of battle.

It is doubtful if a custom so well established could be changed and, just as words take on different meanings in different countries, so in this country today this emblem, the caduceus, which among the Greeks and Romans was purely the wand of the messenger Mercury affording him safe conduct and speed in the enemy's country, by usage of a respected and responsible military service has established it as an Emblem of Medicine.

MEDICAL ANNALS

of the

DISTRICT OF COLUMBIA

Editorial Office, 1718 M Street, N. W.

EDITORIAL STAFF

COURSEN B. CONKLIN, A.M., M.D., *Managing Editor*
WALLACE M. YATER, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

MEDICAL ECONOMIC SECURITY ADMINISTRATION MOVES ON

THIS ADMINISTRATION, OF WHICH OUR OWN MEDICAL-DENTAL SERVICE BUREAU IS A UNIT, SPREADS TO OTHER CITIES

The Medical Economic Security Administration, of which our own Medical-Dental Service Bureau is the chief unit, has become so well known nationally that its coördinator, Ross Garrett, has been called upon by the medical and dental societies of St. Louis, Missouri, and Newark, New Jersey, to help them establish similar plans which are now under way. In addition, Mr. Garrett is working by invitation on surveys for the professions of 15 other large cities that desire to use the Washington plan in whole or in part. The main interest very naturally lies in the Medical-Dental Service Bureau unit of the Washington plan, and it is, therefore, of interest to note that from an humble beginning of $1,974.90 in gross revenue for March of this year its business has increased to a point where it touched $14,673.82 for its maximum month. That the sponsors' fondest hope for a gross revenue of $120,000.00 for the first full year of operation is to be very greatly exceeded, is gleaned from the published report of the Bureau's Board of Directors showing $84,989.95 in gross revenue for the first 7 months. Of this amount, 52 per cent came from all members of the professions and 48 per cent from hospital patients. It is further shown that 2,757 patients have passed through the Medical-Dental Service Bureau alone

The Board of Directors consider this a remarkable showing, representing, particularly to those members of the Society who have been associated with this enterprise on its Board of Directors, a very correct picture and one which quite naturally follows the painstaking and self-sacrificing efforts on the part of Mr. Garrett and his staff during the formative days of all of the Bureaus of this Administration. As a matter of fact, the results achieved through September 15, might well be termed the product of hard labor without any special effort at publicity or actual individual solicitation of professional members.

The Administration ended the month of September with a reserve and sinking fund of approximately $1,000.00. Its Board of Directors, looking forward to the necessity for bringing the Bureau and its work even more closely to the minds of its professional members and their patients, have decided to reinvest these profits, with the exception of a reasonable reserve for contingencies, in ethical publicity and business development. This effort commenced on September 20, and the results have been so convincing as to fully justify the enthusiastic predictions which the founders of this organization prophesied from the outset. For the period, September 20 through October 8, $9,980.46 in new business came into the Medical-Dental Service Bureau, representing approximately 18.4 per cent of the total business done prior to engaging in what might be very softly termed, "promotional activity." This, of course, represented the anticipated revenue of new accounts. The Bureau as an actual check against the gross figures indicative of this new business mentioned above, however, has compared its daily cash receipts for the period, October 1 through October 15, during which $6,238.00 was received over the counter as against $4,692.00 for the similar period in September.

These are tangible results following the spreading of the message to what might be termed a mere handful of the professions and the distribution of only a small bit of publicity data. Hence, when the Bureau's program for expansion has reached the stage where it can cover civic meetings, personnel directors of the large establishments, parent-teachers' meetings, and all of the other gatherings where there is an opportunity to get the message to those with incomes in the brackets which may be served by it, it will be seen just why the picture has exceeded even fondest hopes. The staff at the Bureau is daily receiving letters of commendation from members of the professions and patients whom it has had the opportunity to serve. The hospitals have been unstinted in their praise for the situation the professions have helped to create for them in handling many classifications of their work.

Interesting also is the work performed by another unit of the Medical Economic Security Administration, namely, the Central Admitting Bureau for Hospitals. This unit, as the professions know, after an experimental tenure of 10 months has recently been accorded the full status of an institutional agency of the Community Chest of Washington by unanimous vote of the Board of Trustees of the latter organization. Like its healthy brother, which we have described above, the Central Admitting Bureau, from a simple beginning in January in the handling of the applications of a few patients for hospitalization, has through the month of October cared for 3,335 in-patient cases and 179,000 clinic visits. This Bureau is organized on the basis of separating for interviews all of the applicants passing through its doors into three groups: Those for clinic treatment in the private hospitals, those for clinic treatment in the City hospitals, and those requiring in-patient service in either or both private and public hospitals. A complete medical, social and financial history is secured from all applicants. It is an old story by now, to the staff of the Bureau and the members of the profession dealing closely with it, that 15 per cent of all of those seeking hospitalization on a free basis are found to be able to pay either in part or in full, and that in 6.5 per cent of them the services are returned to private physicians.

The initial result of these two units of the Washington plan is a tremendous step in reply to the editorial in the January Annals, "What is the Answer?" The results are plainly a justification of this Society's faith in the ability of its members through the medium of their own practice, their Medical-Dental Service Bureau and the Central Admitting Bureau for Hospitals, to amply and properly care for the medical and hospital needs of every person in the District of Columbia requiring such attention.

It is to be hoped that the American Medical Association, in its wise consideration of the many plans advanced for medical economic security, will find itself able to recommend, in the immediate future, adoption of a plan of its own for meeting this problem. In doing so it will have lifted a perplexing burden from the lap of every constitutent Society.

TRANSACTIONS OF THE SOCIETY

Stated Meeting, November 6, 1935

The following were duly elected to membership:

Active Members

Herman Eisenberg, 311 Fifteenth Street, N.E.
Harry Marshall Fletcher, 4535 Wisconsin Avenue, N.W.
Leo Bernard Gaffney, 1845 Bay Street, S.E.
Joseph James Greenlaw, 1632 Rhode Island Avenue, N.W.
Robert Howe Harmon, 3133 Connecticut Avenue, N.W.
Maurice J. Kossow, 3206 Wisconsin Avenue, N.W.
Edward Patrick McLarney, 19 L Street, N.E.
Joseph Mahon Moore, 1463 Rhode Island Avenue, N.W.
Roger O'Donnell, Jr., 3509 Macomb Street, N.W.
Clyde Pinckney Reeves, 1028 Connecticut Avenue, N.W.
Carden F. Warner, 1103 Sixteenth Street, N.W.
David Louis Weinstein, 452 Newton Place, N.W.

Reinstated to Associate Membership

Clarence Albert Ransom, East Falls Church, Va.

Applicants for membership to be voted on in January, 1936:

For Active Membership

William Staton Anderson, Johns Hopkins University—1931
Louis Bernard Bachrach, George Washington University—1929

George Lindsay Ball, George Washington University—1932
Jerry Keith Cromer, George Washington University—1929
Elmer Wink Fugitt, George Washington University—1933
Benjamin Golden, Georgetown University—1930
Mabel Harlakenden Grosvenor, Johns Hopkins University—1931
Hugh Hudson Hussey, Jr., Georgetown University—1934
Allan Edward L. Lee, University of Michigan—1930
Isadore Levin, George Washington University—1929
Henry Anatol Monat, University of Arkansas—1929
Katherine Elizabeth Parker, George Washington University—1932
George Clemens Ruhland, Marquette University—1904
Ralph Richards Stevenson, Duke University—1932
Donald Stubbs, George Washington University—1932
James Winston Watts, University of Virginia—1928
Hyman Blacker Weinberg, University of Virginia—1929
Harry Samuel Weitzman, George Washington University—1931

For Associate Membership

Carl Preston Cline, D.D.S., University of Maryland—1917
Henry Clay Coburn, Jr., Columbian University—1903
Ralph Andre Quick, George Washington University—1908

COMING MEETINGS

SOCIETY

Friday, November 22:

Special Meeting to be addressed by the president and president-elect of the American Medical Association.

1. "The Etiology and Treatment of Peptic Ulcer." Tate Mason, M.D., President-elect, American Medical Association, Seattle, Washington.
2. "The Influence of Food in Digestive Disorders." James S. McLester, M.D., President, American Medical Association, Birmingham, Alabama.

A reception in honor of the Society's distinguished guests, with Buffet Supper, will follow.

Wednesday, December 4:

Business Meeting.

Thursday, December 5: *Section on Neurology and Psychiatry.*

1. "Central Neuritis." Alexander Simon, M.D.
2. "Tension." Wendell Muncie, M.D., Baltimore, Maryland.

Friday, December 6: *Section on Internal Medicine.*

1. "Gastro-intestinal Problems." William Earl Clark, M.D.
   Discussion: William J. Mallory, M.D.
2. "Clinical Aspects of Vitamin B Deficiency." G. Louis Weller, Jr., M.D.

Wednesday, December 11:

1. "Non-drainage Appendiceal Peritonitis." Edward A. Cafritz, M.D.
   Discussion: Charles S. White, M.D.
2. "Modern Medical Service in Preparation for Marriage." Walter R. Stokes, M.D.
3. "Surgical Technic in Modified Torek Operation for Undescended Testicle, Empyema and Appendicitis." Illustrated with lantern slides. Oliver C. Cox, M.D.

Recess, Holiday Season.

RADIO ADVISORY BOARD

The radio broadcasts of the Medical Society of the District of Columbia have now the advantages of an Advisory Board on which will serve representatives from the Medical Society at large, the Committee on Public Information, the local Health Office, the United States Public Health Service and the National Broadcasting Company. As at present constituted it consists of the following personnel:

R. Lyman Sexton, *Chairman*
Arnold McNitt, *Vice Chairman*
Herbert P. Ramsey, *ex officio*, from the *Committee on Public Information*

Society, at large:
James A. Cahill, Jr.
Roger S. Cohen
Tomas Cajigas
Robert A. Bier

Health Department, District of Columbia:
Daniel L. Seckinger, Deputy Health Officer

United States Public Health Service:
Ralph C. Williams, *Assistant Surgeon General*

National Broadcasting Company:
Mr. Stanley Bell, Technical Advisor

REPORT OF MEETING OF THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

The recent meeting of the American Academy of Ophthalmology and Otolaryngology was held in Cincinnati, Ohio, September 15 to 19, 1935. As you know, the Academy is divided into two main groups, i.e., the Ophthalmological and Otorhinological, and since I attended only the latter, I will attempt to report on this subject.

There were about 22 technical exhibitors.

The scientific part of the program was divided: (1) Sessions at which prepared essays were read and discussed, (2) demonstration of new instruments and the showing of moving pictures relating to otolaryngology, (3) the instructional courses which occupied three full mornings.

The outstanding moving picture was one in which the larynx, having been exposed with a direct laryngoscope. demonstrated the movements of the vocal cords on phonation, respiration and swallowing. A new instrument was demonstrated by Dr. Tucker of Philadelphia for the peroral removal of foreign bodies from the stomach. It consists of a long flexible forceps, incased in a rubber tubing, through which air can be pumped into the stomach, and then with the aid of biplane fluoroscopy, the foreign body is grasped and removed. Dr. Theobald of Chicago demonstrated with moving pictures his technic of irrigating the maxillary antrum, the chief addition being a large size vacuum bottle in which the irrigating solution was stored and from which it was used directly.

There were 16 prepared essays presented, including the one by Dr. Hans Bruner, the guest of honor at the meeting. There were no outstanding developments presented by the essayists. A report on the treatment of tinnitus brought out that there has been nothing new along these lines since 1888, and no hope was offered for the immediate future. The relation of diet to diseases of the nose and throat was shown to be far from settled. No mention was made of the ionization treatment for hay fever.

In the instructional courses which I attended, there was a decided tendency to regard a great many of the otorhinological problems from a general, rather than from a purely local standpoint, and general, as well as local treatment, was stressed.

The principal scientific exhibit was one under the supervision of Dr. Newhart, on the prevention of deafness. Its chief purpose was to enlist the interests of otologists in the detection and amelioration of deafness. Dr. Newhart is very anxious to have all physicians practicing otology place themselves in a position to be able to adequately test the hearing of all patients, and to advise them whether or not artificial aid to hearing would be useful in their particular case. He pointed out that in many localities jewelers, opticians, and others were installing audiometers manned by persons calling themselves "Audiometrists," who test the hearing and advise patients to buy artificial aids to hearing.

One of the chief reasons for the success of these audiometrists in the localities where they are operating is that they are equipping themselves with good audiometers and other equipment, such as sound-proof rooms, which few otologists possess. In this connection I might say here that there were several low-priced audiometers shown at the technical exhibit. Pilling had one for $150.00; the Physicians' Supply Company of Philadelphia had one for $295.00, and there were a few others. None of these instruments were equipped with a bone conduction receiver.

The possibility of having these audiometrists establish themselves here is a real danger, and I hope we shall be able to do something to forestall, if not entirely prevent, this pernicious practice.

The next meeting of the Academy will be in New York City.

HARRY F. DAVIES, M.D.

TRANSACTIONS OF THE WASHINGTON SOCIETY OF PATHOLOGISTS

October 5, 1935

1. "A NEWLY-DISCOVERED VIRUS THAT CAUSES A LYMPHOCYTIC MENINGITIS OF MAN." **Charles Armstrong, M.D.**

Three strains of virus were isolated at the National Institute of Health during 1933–1934. These strains, although varying somewhat in their apparent virulence for monkeys were similar clinicopathologically and immunologically one to another, but were distinct from other known viruses.

Rhesus and Cebus monkeys, wild mice, white mice, and guinea pigs were shown to be susceptible. Apparently the virus was not very species specific, and the fact that it readily and even spontaneously attacked Rhesus monkeys suggested that it would also probably attack man.

The symptoms and spinal fluid findings in monkeys suggested those of "aseptic lymphocytic meningitis" of man. Sera from cases diagnosed as this ailment were secured through the courtesy of Dr. Paul F. Dickens, Medical Corps of the United States Navy, and were shown by the serum-virus protection test in white mice to possess antibodies against our strains of virus.

Sera showing the presence of potent antibodies have been encountered from the District of Columbia, Maryland, Ohio, Illinois, West Virginia, Kansas and Oklahoma.

In one instance in which serum could be taken early in the course of the disease, and again following the attack, the development of protective antibodies against the virus was demonstrated.

Further evidence that the virus attacks man was adduced by Rivers of the Rockefeller Institute of Medical Research, who isolated a virus from cases of lymphocytic meningitis (Science, May 3, 1935) which was shown by exchange of material to be immunologically identical with National Institute of Health strains.

The human cases occasioned by this virus as detected by the serum-virus protection test were in adults. Usually there was a history of upper respiratory infection which apparently tended to abate and then to be followed, after an interval of a few days, by fever, a severe headache, vomiting, stiff neck and positive Kernig and Brudzinski signs. The spinal fluid was usually under increased pressure, clear or slightly turbid, and with a cell count usually of from 300 to 1,200 cells, mainly lymphocytes. Sugar and sodium chloride were within normal limits. Spinal tap tended to relieve the headache, and recovery occurred in every case, usually in from 1 to 3 weeks.

The pathology in man is unknown, but the most prominent central nervous system lesions noted in monkeys and mice were a lymphocytic infiltration of the meninges and choroid plexuses.

Since a lymphocytic meningitis may develop with various infections, notably tuberculosis, epidemic encephalitis, postinfectious encephalitis, syphilis, etc., it was deemed desirable to give a specific name to the meningitis occasioned by this virus. The name "Acute Lymphocytic Choriomeningitis" is proposed.

2. "PATHOLOGIC HISTOLOGY OF LYMPHOCYTIC CHORIOMENINGITIS IN MONKEYS." **R. D. Lillie, M. D.**

Lymphocytic choriomeningitis in monkeys is characterized by an almost constant, irregular, more or less pronounced lymphocyte infiltration of the plexus chorioidei of the cerebral ventricles, sometimes accompanied by serocellular exudation into the ventricles, by an almost constant, usually quite moderate, irregularly distributed lymphocyte infiltration of the leptomeninges and by very few foci of cellular gliosis and of vessel-sheath lymphocyte infiltration in the brain and cord substance. Meningeal and plexus infiltration may persist for long periods after infection. Focal lymphocyte infiltration and sheath-cell proliferation occur in the spinal-root ganglia.

The lungs often present congestion, serious exudation, interstitial edema, hemorrhages and perivascular lymphocyte infiltration. Pyelitis and sometimes hemorrhagic cystitis occur in a number of animals and are characterized by focal and diffuse mucosal lymphocyte infiltration and edema. Foci of coagulative to fibrinoid hemorrhagic necrosis in the liver are seen in about one fourth of the animals, and focal necroses also occur occasionally in the adrenal and parathyroid glands. Splenic congestion, a variable grade of marrow hyperplasia and lymphnode follicle hyperplasia and sinus reticulo-endotheliosis are other frequent findings.

A focal interstitial or perivascular lymphocyte infiltration is frequent in the kidney, epididymis, uterus, tube, parathyroid, heart, lung, and tracheal mucosa, occasional in esophageal mucosa, pancreas, adrenal, testis, ovary and skeletal muscles.

SOUTHERN MEDICAL ASSOCIATION

ST. LOUIS

November 19–22

*Members of the Medical Society of the District of Columbia participating:

LESLIE T. GAGER. "The Cardiovascular Aspects of Epigastric Pain."

EUGENE R. WHITMORE. "Hypernephroid Tumors of the Kidney (Hypernephroma, Grawitz Tumor Carcinoma)."

J. BAY JACOBS. "Presistent Occipitoposterior: A Simple and Safe Method of Treatment with the Use of New Forceps."

RALPH M. LECOMTE. "Indications for Operation in Kidney Stones."

F. C. SCHREIBER. "Septic Infections of the Leptomeninges."

BOLIVER J. LLOYD. "Public Health Significance of Our Newer Knowledge of Yellow Fever."

LEE MCCARTHY. Discussion of paper by Lloyd W. Ketron and Leon Ginsburg, Baltimore, "Tuberculosis of the Skin in the Negro."

EARL B. MCKINLEY. Discussion of papers by Clarence A. Mills, Cincinnati, "Leprosy in Relation to Climatic Stimulation and Bodily Vigor Over the Earth," and W. McKim Marriott, St. Louis, "Unification of the Medical Curriculum."

WILLIAM THORNWALL DAVIS. Discussion of paper by J. W. Jervey, Jr., Greenville, S. C., "Some Observations on the Jameson Recession Operation."

The following will have scientific exhibits:

EUGENE R. WHITMORE, Georgetown University Medical and Dental Schools. Whole Organ Mounts, Gross and Microscopic.

J. E. WISSLER, jointly with V. W. Archer and S. D. Blackford, University of Virginia, Department of Medicine. Radiologic Pulmonary Findings in Tularemia.

RALPH M. LECOMTE and FRED O. COE. Urinary Calculi.

J. BAY JACOBS, Georgetown University School of Medicine. Practical Application of Obstetric Devices Invented by the Exhibitor.

Mid-western Association of Anesthetists

FRANCIS G. SPEIDEL. "Some Problems in Connection with Non-volatile Anesthetic Agents."

JOSEPH B. BOGAN. "Clinical Evaluation of Cyclopropane After its Use in 300 Surgical Anesthesias."

Woman's Auxiliary

MRS. PRENTISS WILLSON will preside at the Round Table Conference on November 20.

---

*Continued from October Issue.

General

William Thornwall Davis is a Councilor.
Hugh S. Cumming is a member of the Board of Trustees.
L. O. Howard is Honorary Chairman of the National Malaria Committee.

Smith-Reed-Russell Lecture

George Washington University School of Medicine

The first lecture in the Smith-Reed-Russell series for this year at the George Washington University School of Medicine was given before the student body, members of the Faculty and invited guests on Thursday, October 24. The guest speaker for the occasion was Surgeon General Charles R. Reynolds, Medical Corps, United States Army. Subject: "The Medical Corps of the United States Army."

Clinical Club

Meeting Held at the Cosmos Club

November 5, 1935

Program:

1. Address by the Honorable Donald Richberg.

   Mr. Richberg, in an entertaining manner spoke of his relationship with recent governmental projects and his reaction to the acquiring of knowledge through experimentation.

2. "Meningococcemia." Coursen B. Conklin, M.D.

   Report of 2 cases was given, one of which demonstrated the fulminating rapidly fatal blood stream infection without meningeal symptoms; the other a blood stream infection with joint pains rash, and fever for over 3 weeks without symptoms of meningitis, recovery.

DANIEL KERFOOT SHUTE, M.D.

1858–1935

On October 21, 1935, passed Dr. Daniel Kerfoot Shute, a former president* of the Medical Society of the District of Columbia, a professor emeritus in the School of Medicine of George Washington University, who was beloved by his colleagues and by hundreds of graduates who claimed him as their teacher and friend. Dr. Shute's affability and genial good humor brought to him hosts of friends, both within the profession and from among the laity. As a lecturer in the School of Medicine in anatomy and clinical ophthalmology he had the power through his command of diction to make weighty subjects appear interesting. He was particularly well versed in comparative anatomy. His "Primer of Evolution," 285 pages, Open Court Publishing Company, Chicago, 1899, as well as other publications and articles on ophthalmology may be found in the Society's Library. They have much scientific value and interest. In the practice of ophthalmology he enjoyed an extensive practice—as a consultant his opinion was much sought.

Dr. Shute was born, October 22, 1858, in Alexandria, Virginia, the son of Samuel Moore and Jane Ceceilia Kerfoot Shute. His baccalaureate degree and degree in medicine were obtained at the Columbian University, now George Washington University. After his graduation in medicine in 1883 he took a post-graduate course in ophthalmology at the Royal London Ophthalmic Hospital and University of Berlin, Germany. He became a member of the Medical Association of the District of Columbian† soon after his graduation; on October 5, 1892, he was elected to membership in the Medical Society of the District of Columbia. At his funeral former presidents of the Medical Society of the District of Columbia acted as honorary pall-bearers. Dr. Shute is survived by his widow, Mrs. Augusta Shute.

Daniel Kerfoot Shute, M.D. (1858–1935)

---

* 1907.

† In 1911 amalgamated with the Medical Society of the District of Columbia.

MEDICAL ANNALS
of the
DISTRICT OF COLUMBIA

VOLUME IV DECEMBER, 1935 NUMBER 12

MENINGOCOCCEMIA

REPORT OF TWO CASES, ONE FULMINATING WITH RAPID DEATH; THE OTHER WITH EVIDENCES OF BLOOD-STREAM INFECTION FOR WEEKS BEFORE THE ONSET OF MENINGEAL SYMPTOMS, RECOVERY*

COURSEN B. CONKLIN, M.D., F.A.C.P.
Clinical Professor of Medicine, George Washington University School of Medicine

In the consideration of the clinical phenomena attendant upon infection with the Diplococcus intracellularis meningitides (Weichselbaum), one is apt to visualize an individual with a varying degree of clouding of consciousness, having rigidity of the neck and spine at times to the extent of opisthotonos, positive Kernig's and Brudzinski's signs, with increase of superficial reflexes—in other words the signs and symptoms that classically accompany acute inflammation of the meninges. In the literature there have been relatively few cases reported which have had the meningococcus in the blood stream without evidences sooner or later of meningeal involvement; more have been reported which have had delayed clinical evidence of meningitis following prolonged evidence of blood-stream infection characterized by fever of a remittent or intermittent type, with intense joint pains, a petechial rash, chills and sweats. Repeatedly, blood cultures have shown the organism before meningeal involvement.

During the outbreak of meningitis occurring in Washington during the past winter and spring months, 2 cases were encountered that very well illustrate the overwhelming blood infection that sometimes occurs with early demise and the type depicted above with prolonged evidence of blood infection with later frank symptoms of meningitis followed by recovery.

REPORT OF CASES

Case 1: S. P., a white man, aged 18 years, was admitted to my service at Gallinger Municipal Hospital, at 12 o'clock noon, on March 4, 1935, with the history of having had a cold and sore throat for a week. He stated that on the evening preceding admission to the hospital he had developed a generalized rash and that his feet and ankles had become swollen and very painful. When I saw him at 4 P.M. he looked extremely ill, with thick grape-blue lips and an enormously swollen and discolored nose. There were scattered hemorrhagic areas over the entire body. The temperature was 100.6°F., the pulse rate 84, and the respiratory rate 44. The throat was beefy red; the lungs appeared negative; the heart, except for the increased rate and the weakened muscular element of the first sound, was negative; neither Kernig's nor Brudzinski's sign was positive. He was fairly well oriented as to time and place but seemed to be suffering extreme pain in the joints of the lower extremities. The blood count revealed 4,400,000 erythrocytes, 17,920 platelets, and 45,000 leukocytes, of which the polymorphonuclear neutrophiles comprised 24 per cent, band forms 22 per cent, young forms 13 per cent, myelocytes 16 per cent, eosinophiles 3 per cent, lymphoblasts 4 per cent and monocytes 3 per cent. The bleeding time was found to be 1.5 minutes and the coagulation time 3 minutes. A later count showed 51,600 leukocytes, with 93.5 per cent hemoglobin. The cell count of the spinal fluid was 39, with 1 lymphocyte and 38 polymorphonuclear neutrophiles. On direct smear and culture both of blood and spinal fluid the meningococcus was grown. Death occurred at 6:40 P.M. on the day of admission. A complete necropsy was performed, of which a partial report follows: "The body is blotched over its entire surface with irregularly patchy extravasations of blood into the subcutaneous tissues, most marked over the face. The nose is reddish purple and somewhat swollen; the ear lobes are reddish blue. It is hard to find an area 2.5 cm. in diameter which does not show hemorrhagic spots; the peritoneum is studded with petechiae; there is marked extravasation of blood into the suprarenals; a persistent thymus is present, each lobe measuring about 7.5 by 1.25 cm. Both the lungs and the liver show passive congestion. The amount of cerebrospinal fluid seemed decreased upon opening the skull. The convolutions of the brain are markedly flattened with small collections of cloudy grayish fluid present. The blood vessels show congestion but no hemorrhage is evident. No purulent fluid is present at the base of the brain."

---

*Read before the Clinical Club of Washington, November 5, 1935.

Comment. This patient, when first seen, was evidently suffering from an acute infectious disease with hemorrhagic manifestations. Everything from typhus to dermatitis medicamentosa was suggested by those who saw this patient. Cerebrospinal meningitis was suggested despite the absence of neurological clinical evidence. The blood culture and spinal fluid smears and cultures made the latter diagnosis certain.

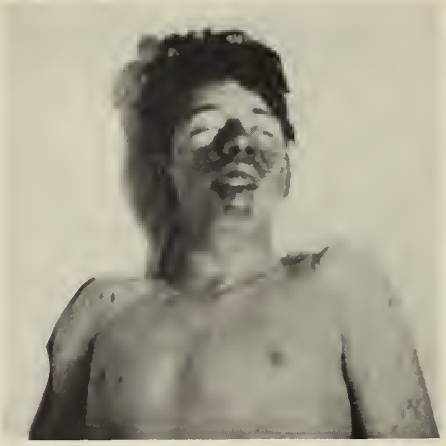


FIG. 1. Note subcutaneous hemorrhages under skin of nose and lips, also petechiae on arms and body, Case 1.

Case 2: J. T. C., a man, aged 32 years, was treated at a local hotel by another physician up to March 15. The physician was said to have stated that the patient had signs of pneumonia which had cleared up and that there was no further need for his services. On the evening of March 15 pains had become severe in the legs. He found difficulty in locomotion. He was treated by his roommate by rubbing which gave relief. I saw him first on March 22, 1935, on which day a note was made that he appeared well nourished with good musculature, lying in dorsal decubitus; the temperature was moderately elevated, the heart rate increased, the lungs clear. There were tenderness and pain in the region of the ankles which were not in the least swollen. The tonsils were large and red. Teeth and gums exhibited evidence of marked Rigg's disease. The gums were swollen and spongy. I thought it probable that he had a beginning arthritis, rheumatic in origin. On March 24 I found him broken out with areas of mottling which did not fade on pressure. Petechiae were numerous over trunk and extremities. On March 26 he entered George Washington University Hospital. He had an irregular temperature curve at this time, complained bitterly of joint pains, and was sweating excessively with preceding chilly sensations. On March 28 and on April 15 blood cultures were ordered and taken by Dr. E. B. Vedder, who reported no growth after 72 hours. The heart rate was rapid and no murmurs were audible. The temperature on occasions reached 103°F. A blood-stream infection of some kind was from clinical evidence a logical conclusion. There were no neurological symptoms up to April 23, the twenty-ninth hospital day. Malaria or Streptococcus viridans septicemia were considered; undulant fever was suggested by a student, but none of the conditions were supported by appropriate tests. On April 23 a headache, which had for a few days preceding been mild, was severe and bitterly complained of, and vomiting occurred with rigidity in the neck. A spinal tap showed fluid under increased pressure, with 43,920 cells per cu.mm., and the meningococcus was found on direct smear and by culture. It is notable that the leukocyte count on April 15 was reported by Dr. Vedder to have been 9,600, while on April 23 it was 32,850, with 82 per cent segmented forms, 5 band forms, 1 monocyte and 9 lymphocytes. The red cell count was 4,830,000. The history from this time on consists of frequent spinal drainage, free use of antimeningococcic serum intravenously and intraspinally and transfusions of citrated blood. Mentally there was a variation from total disorientation with a fairly active delirium to somnolence. In the latter part of May hemiplegia developed. A neurologist who saw him at this time (May 27, 1935) reported as follows: "The patient is confused and disoriented, partly aphasic; he calls a watch a knife. The neck is very stiff. Kernig's sign is present, the pupils are wide and inactive, and there is beginning choked disk on the left; the tongue is tremulous but protrudes normally. There is general hyperesthesia; the reflexes are reduced in the arms but lost in the knees; the muscles are wasted and very flabby, and there is occasional twitching of the left arm and hand. The conclusion was that in addition to meningitis there may have been an alcoholic neuritis." On June 21 the patient was discharged from the hospital thoroughly clear mentally, able to stand alone, and except for nocturnal enuresis was in remarkably good condition. It may be of interest to state that he had 31 spinal taps, a total of 395 cc. of antimeningococcic serum was administered and 5 blood transfusions, frequent intravenous injections of glucose and 2 of magnesium sulphate were given.

Comment. This patient clearly represents the type which shows a meningococcemia for days before meningitis develops. Bloedorn, in 1921, reported a case which ran an intermittent temperature corresponding to quartan malaria; quinine was administered. On the eighteenth, twentieth and twenty-first days of the disease the blood cultures showed the meningococcus. He made a complete review of the literature up to that time. In his case evidence of meningitis did not develop. A cure was effected after administration of serum. His quotation from blackfan is rather significant, as follows: "The diagnosis at the time of blood-stream infection is difficult to make. The vast majority of cases are not recognized before the development of meningeal symptoms." Graves, Dulaney and Michelson, in 1929, reported cases and gave a classification of (1) acute meningococcemia which includes the fulminating form, and (2) subacute or chronic meningococcemia with metastasis to the central nervous system. Dock reports a patient with chills and fever with sweats for 7 months with an endocarditis followed by the late appearance of meningitis with death. It is stated that those cases without endocarditis have a good chance for recovery.

Summary and Conclusions

Two cases are reported showing undoubted blood-stream infection with meningococci. Although the organism was not recovered in Case 2, the resulting situation with the initial classic picture make the presence in the blood stream highly evident.

The symptom grouping of irregular temperature, joint pains, chills and sweats, with petechiae, all common factors in a number of blood-stream infections, should call for frequent blood cultures with the idea in mind of the possibility of a meningococcus infection.

BIBLIOGRAPHY

Bloedorn, W. A.: Meningococcus Septicemia. Am. J. M. Sc., 1921, **162**, 881.

Graves, W. R., Dulaney, A. D., and Michelson, I. D.: Chronic Meningococcemia; Report of Case. J. A. M. A., 1929, **92**, 1,923.

Atelectasis, Massive, Collapse and Related Postoperative Conditions.— . . . The large majority of all human beings die through gradual depression and final failure of the circulation. As the result of a vast amount of investigation we know now what factor in the circulation it is that fails; but until recently we have not known just how or why this factor fails. Here normal physiology and clinical physiology present two closely related problems; one the converse of the other. One is the problem of how in health the normal circulation is maintained; the other is the problem of how in illness and vital depression the circulation fails. We know that the heart is a pump that, so to speak, lifts the blood from the low pressure in the veins up to the high pressure in the arteries and we know that the vasomotor nervous system controls the distribution of the blood and maintains arterial pressure. But the volume of blood that the heart can pump is limited by the volume that comes to it through the veins from the reservoirs of blood in the tissues. Thus beside the heart and the vasomotor mechanism, there is a third major factor in the circulation: the factor that determines the volume of blood returning to the heart through the veins. To this factor I gave the name of the "venopressor mechanism" and it is now generally recognized that in the great majority of cases depression of the circulation is not due to failure of the heart, nor of the vasomotor system. It is due rather to a gradual decrease in the volume of blood returning to the heart: that is, to the progressive depression and final failure of the venopressor mechanism. . . .

Extract from article by Yandell Henderson, Professor of Applied Physiology, Yale University; *Bulletin, New York Academy of Medicine, November, 1935, p. 639.*

The Fundamentals of Internal Medicine*

DISEASES OF THE NERVOUS SYSTEM

(Continued from November, 1935)

Antoine Schneider, M.D.

Professor of Neurology, Georgetown University School of Medicine

Infectious Diseases

In discussing the subject of infectious diseases of the nervous system, a number of subdivisions may logically be made. It appears best, in the interests of systematic consideration, to take up first the disseminated infections of the coverings of the nervous system, namely the meningitides, then the encephalitic and myelitic conditions that affect the parenchyma proper, and finally the localized and circumscribed infectious processes, the abscesses.

Meningitis

As in all other infectious syndromes affecting specific organs, meningitis betrays itself by certain signs and symptoms that are fairly constant, no matter what the etiological agent may be. The pathological findings, too, have a certain fundamental similarity. On the other hand, therapeutic procedures, and, obviously, prognosis depend entirely upon determination of the causative agent. It is, therefore, of the utmost importance that the specific etiological agent be discovered in the shortest possible time, since in few other conditions does the time element so definitely affect the eventual outcome.

SYPHILITIC MENINGITIS

Etiology. This type of meningitis is, of course, spirochetal in origin. It may be present, to a greater or lesser degree, at any time after the primary stage. The acute type probably

---

[*] This is the third instalment of a treatise on Diseases of the Nervous System prepared to orient the older graduates of medicine in the changing concepts of diseases of the nervous system and to review the subject for younger graduates. Other instalments will follow until completion.

represents a manifestation of the secondary stage, while the chronic forms are usually met with later in the course of the disease and very frequently accompany other types of syphilitic infection of the nervous system. In general, the more prominent and acute the signs of meningeal involvement, the more recent the infection may be considered. There is no predilection for either sex or for any race. It is more often seen in the young than in the old, obviously because of its tendency to manifest itself early in the disease.

Physiological and Pathological Considerations. Syphilitic meningitis is a non-suppurative process, characterized by lymphocytic exudation, meningeal thickening and, in the chronic type, by proliferation of connective tissue and the formation of adhesions. The blood vessels of the meninges are usually affected, showing fairly typical changes in intima and media, as well as perivascular round-cell infiltration. The inflammatory process is seldom limited strictly to the meninges, but usually affects the cortex, giving rise to a superficial encephalitis. The ependymal lining of the ventricles may also show evidence of infection. In general the inflammation is most marked at the base of the brain, and the cranial nerves in this region are quite apt to be affected by a true syphilitic perineuritis, or involved in secondary adhesions. The optic and oculomotor nerves are the most frequently disturbed, with the facial and auditory next. Coincident with the formation of adhesions, particularly about the base of the brain, disturbances in the cerebrospinal fluid circulation occur, and symptoms referable to increase in intracranial pressure often arise. Small, multiple gummata of the meninges are not uncommon, but these are practically never of sufficient size to cause focal pressure symptoms.

Symptoms and Signs. In the acute form of syphilitic meningitis the outstanding symptoms are headache, stiffness of the neck, vertigo and vomiting. Less common symptoms are stupor, generalized convulsive attacks and visual disturbances. Irregular fever of varying degree is fairly common. The onset of symptoms of true syphilitic meningitis are occasionally found to date back to a head injury. This acute form of meningitis is comparatively uncommon and differs from the chronic form mainly in intensity of symptoms.

Chronic syphilitic meningitis is prone to attack the structures at the base of the brain, and the resulting clinical picture is that of evidence of generalized meningeal involvement along with signs of focal cranial nerve disturbance. Optic neuritis, followed by secondary optic atrophy, is extremely common. The visual fields often show progressive, concentric contraction. Involvement of the oculomotor nerves, as shown by ptosis, and by paralysis of the intrinsic and extrinsic muscles of the eye, is also frequent. Any sort of pupillary disturbance may be seen, the pupils usually being irregular, unequal, and fixed to both light and accommodation. Ptosis is probably one of the most suggestive signs of meningeal syphilis. Any of the remaining cranial nerves may be affected, the distribution of the lesions generally being asymmetrical and unilateral. Accompanying meningeal symptoms are almost constant, although variable in degree. Headache, said to be worse at night, is frequently very severe, but the stiffness of the neck is not as intense as in the acute forms, and Kernig's and Brudzinski's signs may not be elicited. Convulsions are rather uncommon, but paresthesias are often complained of, particularly when the inflammatory process involves the vertex. The spinal fluid findings are of the utmost importance. The pressure of the fluid is almost always appreciably increased, more so in the acute than in the chronic forms. The cellular content is always increased, usually ranging from several hundred to a thousand cells, with a definite predominance of lymphocytes. The protein content, too, is generally found to be increased. Spinal fluid sugar may be normal or slightly decreased, while chlorides usually show a slight decrease. The colloidal gold curve shows some change in about 95 per cent of cases, the change usually being in the first or in the middle zone. The spinal fluid Wassermann is positive in about 85 per cent of cases, the blood Wassermann in about 60 per cent.

Course and Prognosis. Syphilitic meningitis, even in the acute form, is rarely fatal. The acute symptoms usually subside, and a chronic condition sets in. Cranial-nerve disturbances are very likely, however, to be persistent, as well as symptoms that depend upon a chronic, low-grade increase in intracranial pressure. Treatment in early cases yields extremely gratifying results, even as regards the cranial-nerve symptoms. In older cases the meningeal symptomatology may disappear under treatment, but the cranial-nerve paralyses are quite apt to be permanent.

EPIDEMIC MENINGOCOCCIC MENINGITIS

Etiology. This infectious disease, with its remarkable predilection for the enveloping tissues of the nervous system, is caused by the Meningococcus intracellularis. It appears in both epidemic and endemic form, the former most often in the winter and spring. Children and young adults are most often affected, but in severe epidemics no age group is spared. Although exact statistics are not available, it would appear that the Negro race is more susceptible than the Caucasian. The specific organism is frequently found in healthy carriers in the nasopharynx, and it is extremely probable that the disease is spread by such carriers. The previous state of the victim's health is of little significance, the strong and active being just as susceptible as the weak and "run-down" individual. The organism itself is easily cultured and appears as a gram-negative intracellular Diplococcus. Several types, with varying cultural characteristics, have been described. On clinical grounds it is easy to postulate a variation in types, since frequent observations have been made of the variation in mortality rates in different regions, and at different times of the year.

Physiological and Pathological Considerations. The pathological picture is that of marked purulent exudation, involving the pi-arachnoid over the entire surface of the brain and spinal cord, as well as the ventricles themselves. The process frequently involves the superficial layers of the parenchyma and very occasionally small abscesses are seen. The exudative cells are predominantly polymorphonuclear leukocytes, within which ingested meningococci are often found. The inflammatory process may involve the eyeball as well, probably by means of extension along the optic nerves, and result in a severe panophthalmitis. The auditory nerve may be involved with resulting deafness.

Symptoms and Signs. The symptoms of epidemic meningococcus meningitis are quite apt to begin acutely. At times the onset may be fulminating, with high fever, stupor, coma and death, and few signs of meningeal irritation. In these cases the blood culture is usually positive. Generally, however, there is headache and restlessness for a day or two, and often a mild upper respiratory infection. The headache then becomes severe, the temperature usually rises, vomiting and photophobia are common, and definite rigidity of the neck is almost constant. In children convulsions are frequently seen, especially at the onset of the disease, both Kernig's and Brudzinski's signs are usually present. Petechiae and purpuric spots in the skin may be seen during the early stages; as well as a positive blood culture, but it is my feeling that these are comparatively uncommon findings. Deep and superficial reflexes are diminished or lost. Abnormal reflexes are seldom seen. In the blood there is generally a leukocytosis over 20,000. The spinal fluid is under markedly increased pressure; there is a great increase in polymorphonuclear leukocytes, usually over 1,000 per cu.mm.; the fluid is cloudy, the protein is increased, and the sugar and chlorides are decreased. Most important of all, meningococci are usually easy to demonstrate in the fluid, or may be cultured within a very short time.

As mentioned before, ophthalmitis and various carnial-nerve disturbances are sometimes seen as complications, but these occur in a rather small percentage of cases.

Course and Prognosis. In untreated cases the mortality rate is difficult to determine accurately but is probably at least 40 per cent. In these cases coma becomes progressively deeper, incontinence sets in, the fever is usually high, weakness and emaciation are marked, and death usually occurs within 10 days. Even in those cases that are diagnosed early and treated promptly the mortality is about 20 per cent. It must again be emphasized, however, that the mortality rate varies with time and place.

Certain cases of meningococcic meningitis show a tendency to recur after apparent cure. This probably depends upon the liberation of organisms that have become caught in loculated cerebrospinal fluid collections, secondary to meningeal adhesions.

The sequelae of meningococcic meningitis are fairly common. Children frequently develop a low-grade chronic hydrocephalus. Chronic headaches, visual disturbances and deafness are seen, as well as mental and emotional disorders. Focal paralyses such as hemiplegia and monoplegia are rare.

PYOGENIC MENINGITIS

Etiology. Any of the pus-producing organisms may cause meningitis. Meningococcic meningitis itself truly belongs to the pyogenic group, but because of its more marked specificity it has been considered separately. The commonest of the pyogenic organisms causing meningitis are the staphylococcus, the streptococcus and the pneumococcus. None of these are epidemic in nature, and all of them depend upon foci of infection elsewhere in the body. There is no predilection for any race, sex or age group. In comparison with meningococcus meningitis the incidence of any other single type of purulent meningitis is low.

Physiological and Pathological Considerations. The infection of the meninges in pyogenic meningitis is generally due either to extension from a contiguous focus or to a blood-borne organism. The great majority of such cases arise from sinus infection, especially infection of the mastoid, where an area of osteomyelitis is adjacent to the meninges. Meningitis secondary to septicemia is rare in comparison. The pathological picture is remarkably similar to that of meningococcic meningitis, with marked purulent exudation and inflammation of the piarachnoid, and polymorphonuclear predominance. The only truly distinctive feature is the organism itself. Over 50 different organisms have been described as etiological agents in meningitis, but the great majority are caused by those enumerated above. Others less frequently encountered are the colon and influenza bacilli.

Symptoms and Signs. The symptomatology of pyogenic meningitis other than the meningococcic is, in practically all instances, similar to the meningococcic. The important factor in this connection is the discovery of foci of infection elsewhere, particularly in the sinuses, or the eliciting of a history suggestive of such an infection. A point of some possible importance is that the course of the disease, as well as its onset, is apt to be more acute in these types of meningitis than in the meningococcic. In all of them there are leukocytosis in the blood, fever, stiff neck and disturbances of consciousness. The spinal fluid shows increase in pressure and protein, marked increase in leukocytes, and decrease in sugar and chlorides. Many of the causative organisms may be seen on direct smear from the fluid and mots of them can easily be cultured.

Course and Prognosis. The course of all of the pyogenic meningeal infections, with the exception of the meningococcic, is progressively downward, and nearly all cases, whether treated or untreated, end in death.

TUBERCULOUS MENINGITIS

Etiology. This type of meningitis is always due to the tubercle bacillus. It is principally a disease of the young, it decreases with increasing age, and it is rarely seen past middle life. It may attack individuals in good health, but in general it is seen in patients who give some suggestion of previous disease. In racial incidence it parallels that of other forms of tuberculosis, and in this country the negro shows a higher index of susceptibility.

Physiological and Pathological Considerations. Tuberculous meningitis is stated to be always secondary to a tuberculous focus elsewhere in the body. This is probably true, although at times no such focus can be found. It may be carried by the blood and the lymph, may arise from an asymptomatic cerebral tubercle, or may spring from an adjacent area of tuberculous osteomyelitis. The meninges show variable degrees of thickening, and the exudate, principally lymphocytic in nature, is found especially about the base of the brain. Small meningeal tubercles are quite common. The exudate itself is usually serofibrinous, rarely purulent. Endarteritis of the pial vessels is a frequent accompaniment of tuberculous meningitis as well as areas of tuberculous encephalitis The meninges of the brain proper are usually more seriously affected than those of the cord.

Symptoms and Signs. The onset of tuberculous meningitis is typically insidious with gradual progression of symptoms. All types of disturbances of consciousness and of the normal emotional state are noted. There may be general malaise, apathy and listlessness, or irritability and insomnia. Anorexia and constipation are constant, and vomiting and slight rise in temperature are frequent. Occasionally one sees the acute type of onset, especially in young children, with severe headache, stiffness of the neck, stupor or delirium. There is, in practically all cases, increasing rigidity of the neck and limbs. The deep reflexes are at first increased, and abnormal reflexes, such as Babinski's sign, may be elicited. The deep reflexes are eventually lost, and the rigid limbs become flaccid. Changes in temperature are not very constant or typical. It is usually irregular and seldom very high. The respirations are rapid, and the pulse is variable. All possible combinations of cranial-nerve involvement are common. The blood findings are not typical, an increase in lymphocyte percentage being the commonest. The spinal fluid findings are of great importance. The pressure is nearly always elevated, often to an extreme degree. The fluid itself may be clear, but is usually opalescent, and often has a faint yellow tinge. A delicate clot, or web, develops on standing. There is increase in cells, chiefly lymphocytes, but rarely over 500 per cu.mm. The protein content is generally definitely increased. An important point to be remembered is that in tuberculous meningitis the fall in chlorides occurs early in the disease, is usually quite marked, and often precedes the decrease in sugar content. The tubercle bacillus itself may be found in the clot or in the sediment after centrifuging, but the search may be tedious. Guinea-pig inoculation is usually positive, but due to the long incubation period is generally of only academic importance. Levinson's test (v. i.) is of importance and should be applied in doubtful cases. Clinical evidence of tuberculosis elsewhere in the body is often available, especially in the bones, lungs, bronchial glands and mediastinum.

Course and Prognosis. A few cases of tuberculous meningitis have been reported as cured, but for practical purposes it may be considered as of hopeless prognosis with fatal outcome in a few weeks.

LESS COMMON MENINGITIDES

These are rare as regards individual types, but the etiological agents are legion. Practically all known pathogenic micro-organisms may cause meningitis, as well as certain yeasts and fungi. For instance, meningeal involvement in the course of actinomycosis, streptothricosis, blastomycosis, torulosis and aspergillosis have been reported. In general, they have the same clinical manifestations to a greater or lesser degree, and the organism itself is the only variant. The outlook is usually poor.

Serous Meningitis or Meningismus. In the course of many infections, and sometimes following trauma, symptoms arise which strongly suggest the presence of meningeal infection. The cerebrospinal fluid is found to be under increased pressure, but cytological and chemical changes are not found, nor is there evidence of the presence of bacteria. The condition is invariably benign, and symptoms are usually promptly relieved by lumbar puncture. To this condition the names of serous meningitis or of meningismus have been applied.

Benign Lymphocytic Choriomeningitis. For a number of years cases have been reported under the names of benign lymphocytic meningitis, acute lymphocytic meningitis, and sterile, or aseptic meningitis that are characterized by the onset of meningeal symptoms, increase in cerebrospinal-fluid pressure, and increase in the lymphocytic content of the fluid, without change in sugar or chlorides and without the presence of organisms. Recovery is the rule, without sequelae. Within recent months Armstrong and Lillie have studied this syndrome, have proven it to be due to a definite filtrable virus, and have demonstrated typical changes in the choroid plexuses of infected laboratory animals. Immunized rats show no reaction when inoculated with serum from affected patients, while unimmunized animals develop tetanic spasms and frequently die. They have coined the descriptive term, benign lymphocytic choriomeningitis, to be applied to the condition.

DIAGNOSIS OF THE MENINGITIDES

Syphilitic Meningitis. The diagnosis is established by a history of syphilis, often of recent onset, by symptoms of meningeal inflammation of low grade, and often of rather long duration, by various pupillary and extra-ocular muscle disturbances, especially ptosis, by positive blood Wassermann (60 per cent) and particularly by the spinal-fluid findings. These latter are moderately to markedly increased pressure, increase in protein, increase in cells with predominance of lymphocytes, little or no change in sugar and chlorides, first-zone and mid-zone changes in the colloidal gold curve, and a positive spinal-fluid Wassermann (85 per cent). It may be confused with tuberculous meningitis, but the positive serological study, the altered colloidal gold curve, and absence of sugar and chloride changes usually settle the diagnosis.

Epidemic Meningococcic Meningitis. The diagnosis of acute meningitis is easily made by physical findings, increased spinal-fluid pressure, protein and leukocytes, and decrease in sugar and chlorides, but the etiological diagnosis depends upon the discovery of the organism in smear or culture.

Pyogenic Meningitis. As in the previous condition the determination of the etiological agent depends upon discovery of the organism.

Tuberculous Meningitis. A history or physical findings of tuberculosis elsewhere in the body, increasing meningeal symptoms usually over one to several weeks, markedly increased spinal-fluid pressure, opalescent yellowish fluid with web formation, increase in lymphocytes, early drop in chlorides, negative serological study, and occasional positive smear or guinea-pig inoculation, should lead to a correct diagnosis. Levinson's test for tuberculous meningitis appears to be of value in doubtful cases. In ordinary pyogenic meningitis, sulphosalicylic acid, when added to spinal fluid, throws down a precipitate which is three times as high in millimeters as that thrown down by mercuric chloride. In tuberculous meningitis this ratio is approximately reversed. It is distinguished from syphilitic meningitis by negative serological results and definite changes in sugar and chlorides of the spinal fluid. It is distinguished from choriomeningitis by sugar and chloride changes and by poor response to treatment. Finding of the tubercle bacillus is, of course, conclusive proof.

Less Common Meningitides. The diagnosis of those forms due to definite infective organisms must depend upon recovery of the organism. Serous meningitis or meningismus is diagnosed by the presence of infection or trauma elsewhere in the body, by increased cerebrospinal fluid pressure without increase in cells or chemical or serological change, and by a benign clinical course. Choriomeningitis should be suspected when there are meningeal symptoms, increase in cerebrospinal fluid pressure and lymphocytes, no organism and no chemical or serological change. Animal inoculation with suspected serum is the most definite basis for diagnosis. Also, the clinical course is benign.

TREATMENT OF THE MENINGITIDES

Syphilitic Meningitis. This condition is best treated by a combination of arsphenamine and mercury. Bismuth is also of value. The usual case of chronic low-grade syphilitic meningitis may be expected to respond favorably to routine antiluetic treatment. Neoarsphenamine may be given in doses of 0.4 to 0.6 grams every 4 to 7 days accompanied by the intramuscular injection of mercury salicylate, 0.03 to 0.06 gram, until 6 to 8 injections of each have been given. After this course neoarsphenamine and mercury (or bismuth) may be given in alternate courses until clinical and serological cure is attained. In general, treatment should be continued for at least 18 months, and regular serological checks should be made for some time thereafter. One occasionally sees cases of chronic syphilitic meningitis that are quite resistant to drug therapy but that respond almost miraculously to malaria. Lumbar puncture usually relieves the headache so often seen in this condition. Iodides are of doubtful value.

In acute syphilitic meningitis the problem is somewhat different, especially in the presence of advancing involvement of cranial nerves. Here, treatment with the arsenicals and the metals must be given with much greater persistence. Lumbar puncture is practically always a necessity, should be done frequently, and should immediately precede the injection of drugs to facilitate their passage into the cerebrospinal fluid. Dramatic results, both symptomatic and objective, may be achieved by this type of intensive therapy.

Epidemic Meningococcic Meningitis. Treatment in this condition is both symptomatic and specific. Symptomatic treatment consists in the usual régime of competent nursing, rest and quietude, sedatives, icebags, and light and nutritious diet. Isolation should be enforced. Specific treatment is by means of intravenous and intraspinal injection of antimeningococcus serum and by drainage of the cerebrospinal fluid at frequent intervals. Whenever meningitis is suspected and cloudy spinal fluid obtained, the case should be treated as one of meningococcic meningitis until proved otherwise. This treatment should consist of spinal drainage, fluid being withdrawn slowly until the pressure is within normal limits. Following this, polyvalent antimeningococcic serum is given intravenously, in doses of from 30 to 90 cc. It is wise to do a skin test first, since occasionally severe, even fatal reactions may occur. Should the test be positive, gradual desensitization will have to be carried out. Intrathecal injection of serum is usually recommended in doses of 15 to 30 cc., but in view of the poor circulation in the spinal subarachnoid space, especially in the presence of dense exudates, one cannot but wonder whether any real benefit results. Spinal drainage and injection of serum should be repeated at least once every 24 hours in the acute stage, to be gradually discontinued as the patient improves. Should the clinical course continue downhill after a reasonable period several procedures should be considered. First, the serum used should be tested to determine whether it agglutinates the organism present in the fluid and, if it does not, should be discarded for one that does. Again, injection of the serum directly into the ventricles through a trephine opening, or into the cisterna magna is sometimes of very definite value. Other procedures, such as the intravenous injection of antiseptic drugs and vaccine therapy, have not yet proved themselves to be of value. Should a unilateral meningococcic ophthalmia appear, enucleation of that eye should be seriously considered, since sympathetic ophthalmia is quite frequent. If spinal subarachnoid block should supervene, combined lumbar and cisternal puncture should be performed and the block broken down by washing out the spinal subarachnoid space from below upward with warm serum or normal saline solution.

Pyogenic Meningitis. Treatment is generally unsatisfactory in these conditions. Kolmer recommends the intracarotid injection of Pregl's colloidal iodine solution and has reported some cures of staphylococcus meningitis. More recently, Kubie and Retan have advocated continuous drainage of spinal fluid combined with the oral ingestion and intravenous injection of large quantities of hypotonic solutions. Water is given by mouth and saline solution of 0.375 to 0.45 normal, intravenously. By this method a constant flow of fluid from the blood through the choroid plexus to the cerebrospinal fluid is established, the ventricles and perivascular spaces are flushed out and the infected material is carried away through the lumbar puncture needle. A number of encouraging results have been reported from this apparently logical therapeutic approach, and it is to be hoped that it may eventually develop into a reliable and life-saving procedure.

Tuberculous Meningitis. Treatment is purely symptomatic and consists in frequent lumbar punctures and the free use of sedatives. Kubie and Retan's method has been used, but judgment must still be withheld as regards its efficacy. Certainly, in the face of an otherwise hopeless condition, it is worth trying.

Less Common Meningitides. What has been said of the treatment of the common pyogenic meningeal infections applies equally well to the less common ones of known etiology. Treatment of such benign conditions as serous meningitis and choriomeningitis is solely by lumbar puncture. Very frequently a single puncture serves to relieve all symptoms.

(*To be continued*)

JAUNDICE AND ASCITES WITH RECOVERY

Report of a Case

John R. Cavanagh, M.D.

Associate Clinical Professor of Medicine, Georgetown University School of Medicine

Ascites occurring in association with jaundice is usually an indication of an early fatal outcome. Very few cases with recovery have been reported. It is for this reason that I present this case.

Report of Case

The patient, a white female, aged 28 years, was admitted to Georgetown University Hospital on September 22, 1931, complaining of generalized severe weakness of 2 weeks' duration. This had followed an attack of hives which had lasted a week and which was attributed to ingestion of lobster. The patient had been in bed for 2 weeks because of weakness. Other complaints were nausea with occasional vomiting immediately after meals, moderately severe and fairly constant lower abdominal pain, and profuse vaginal discharge. She had had chorea as a child, tonsillectomy and uterine curettage in 1921, appendectomy in 1922, and cystitis, "nervous breakdown," laparotomy for intestinal obstruction and removal of an ovarian cyst in 1923. In 1925 she had had a full-term pregnancy, the child dying after several hours. In 1927 she had had another laparotomy for adhesions and suspension of the uterus. In June, 1931, 3 months before admission she had had a self-induced abortion in the third month of pregnancy. At this time she took a great many drugs to induce labor. She did not know the names of most of them. Normal menstruation had occurred twice following this, in August and September. The past history was otherwise negative except that she had had 4 attacks of moderately severe abdominal pain which radiated from the epigastrium under the costal margins, being more severe on the right side. These had all occurred during the preceding months. Physical examination on admission revealed a well nourished white female, not appearing ill but unable to sit up in bed without assistance. The temperature was 98.6°F., the pulse rate was 82 per minute and the respiratory rate 20 per minute. The blood pressure was 120 systolic and 80 diastolic. The general physical examination was essentially negative except for tenderness, grade 3, over the entire abdomen, with rigidity, grade 1, in both lower quadrants. The pelvic examination showed moderate acute inflammatory changes within the introitus. The cervix was lacerated, normal in position and moderately fixed. The uterine body was severely retroverted and fixed. The right broad ligament was tender on pressure, and there was considerable induration in the left broad ligament. No masses were palpable. The laboratory studies revealed hemoglobin of 66 per cent (Newcomer method), red blood cells 3,660,000, and leukocytes 6,400 per cubic millimeter of blood, of which 25 per cent were lymphocytes and 75 per cent polymorphonuclear neutrophiles. Urinalysis was negative, as were the Wassermann and Kahn tests of the blood. Cervical smears were negative for gonococci. The impression at this time was that the patient had severe abdominal and pelvic adhesions with retroversion of the uterus and a moderately severe secondary anemia. Four days after admission she received 500 cc. of citrated blood with no apparent reaction, but 3 days later it was noted that she was slightly jaundiced. Shortly thereafter, the van den Bergh reaction was reported as prompt direct with 5 mg. of bilirubin per 100 cc. of blood, and 10 days later the quantitative reaction showed 25 mg. per 100 cc. After another 10 days it had risen to 35 mg. per 100 cc. At this time, in view of the increasing intensity of the jaundice and the history of recurring attacks of severe upper abdominal pain which had occurred shortly before admission it was decided to perform a laparotomy to determine whether cholelithiasis with obstruction of the common bile duct existed. This was done September 29, 1931, under spinal anesthesia. The operative report was as follows: "There are adhesions to the anterior walls of the urinary bladder. The right ovary is slightly enlarged. The pelvis is otherwise normal. The liver is normal in size and shape, but seems unusually firm. The spleen is one and a half times enlarged. There is a moderate amount of bile-stained fluid in the abdominal cavity. A section was removed from the liver edge for biopsy." The ascites, which had not been evident clinically, increased greatly during the first few postoperative days and drained freely through the incision. The postoperative course was uneventful except for several days of marked oliguria with elevation of the nonprotein nitrogen of the blood to 45 mg. and rather free bleeding from the incision on the seventh and eighth postoperative days requiring re-suture of the incision. Evidence of ascites persisted for about 2 weeks and then gradually disappeared. The van den Bergh reaction showed a gradual decline following the laparotomy. The readings at approximately weekly intervals were 15 mg., 7.8 mg., and 2 mg. per 100 cc. of blood. The bromsulphalein test of liver function done after the ascites cleared showed 75 per cent retention in 5 minutes and 15 per cent in 30 minutes. The stools showed bile throughout the course. Biopsy of the liver showed the following: "The sections show a slightly thickened capsule and considerable periportal fibrosis. There is marked edema and round-cell infiltration which obscures the normal hepatic picture. Along with this there is a pronounced regenerative process. The picture is that of a subacute inflammatory process." The liver and spleen were made visible radiologically at this time by the intravenous administration of thorotrast and were reported as follows: "Hepatosplenograms after injection of thorium dioxide solution show the following measurements of the liver: Length 25.5 cm., thickness 13.5 cm. This is above the average in size. There is moderate degree of mottling which has the appearance of early cirrhotic change. The spleen is normal in size." The temperature was normal throughout the course in the hospital as were the pulse and respiration, except when the postoperative hemorrhage occurred. Treatment consisted chiefly of transfusions and administration of large amounts of glucose intravenously and subcutaneously. Since that time the patient has been under observation and has been fairly well except for attacks of severe abdominal distress simulating partial intestinal obstruction occurring at intervals of 3 to 4 months and lasting about a week. She is otherwise well, has been married twice, and is able to perform all of the duties of nurse. In September, 1935, roentgenographic films of the liver and spleen were again made and reported as follows: "Examination of the liver and spleen 3½ years after the injection of thorotrast shows no appreciable diminution in the intensity of the shadows. The liver and spleen are approximately the same size as at the previous examination, except for a slight decrease in the volume of the spleen. The liver shows some gross and also fine granular mottling, which has the appearance of cirrhosis. The spleen shows a peculiar honeycomb-like appearance. There is an opaque meshwork beneath the lower part of the right lobe of the liver, which evidently represents the medium in the lymphatic vessels. There are also deposits probably of thorotrast in the hepatic and splenic lymph nodes."

COMMENT

No attempt will be made to review the literature of jaundice and ascites with recovery in this report. Ten cases have been reported. McCabe and Hart in a recent article discussed briefly the previously reported cases and reported 2 cases of their own. The etiology of the jaundice in the reported cases was varied. One case was due to arsphenamine poisoning, 1 to a stone in the common bile duct, 1 to pressure of a gland on the duct, 2 to cinchophen, 2 to infectious hepatitis and 4 to obscure causes, as in the present case. The numerous abortifacient drugs which this patient took 3 months before the onset of her illness would seem to have been ingested too long before to play any part in its production. Infectious or catarrhal jaundice, as a rule, does not often cause such an intense icterus nor does it usually remain as high for so long a period. Common-duct obstruction would seem to have been ruled out by the operative procedure. A diagnosis of toxic hepatitis of undetermined etiology was the only one which could be made.

The subsequent changes in the liver add to the interest in this case. Instead of being the end result of a progressive irritation of the liver cells as it is so frequently, the factor producing the jaundice and ascites in this case seems to have initiated a progressive hepatic cirrhosis which during the last 3½ years has slowly progressed. Whether or not this will progress to the point of producing the clinical picture of advanced portal cirrhosis is a question which cannot be answered at present. It would be interesting to know what happened eventually to the cases previously reported, whether the jaundice and ascites marked the beginning or the end of the liver damage. Visualization of the liver and spleen by X-ray after the intravenous administration of thorium dioxide (thorotrast) according to the method of Yater and Otell offers a convenient and accurate method of determining the degree and progress of hepatic cirrhosis. One course of injections of this medium is sufficient for repeated visualization of these organs since it remains in the body for years, apparently without harmful effects. In the present case 3½ years after injection there is no definite diminution in the intensity of the shadows. Further study of similar cases by this method will give us much more information than we now possess concerning early changes in diseases of the liver and spleen. It will enable us to recognize cirrhosis of the liver in the early stage at a time when therapeutic measures might be more likely to be successful.

BIBLIOGRAPHY

McCabe, J., and Hart, J. F.: Recovery Following Jaundice with Ascites. J. A. M. A., 1935, **105**, 859.

Yater, W. M., and Otell, L. S.: Hepatosplenography with Thorium Dioxide Sol. Clinical Experience with 100 Patients. J. A. M. A., 1933, **101**, 507.

Observations on Tuberculous Abscess of the Chest Wall.—. . . the terms primary, secondary and tertiary . . . indicate, if understood properly, certain phases shown clinically by morbid physiology and shown anatomically by a characteristic morbid anatomy.

The first phase with limited distribution and characterized by a special anatomical picture and little allergy, can be advantageously treated by protection from contaminating contacts, by rest, by sunshine and proper nourishment.

The second phase with wide dissemination, high hypersensitiveness to the tuberculo-toxins, exudative inflammation and caseation can be advantageously treated toward the end of the phase when the foci are in bones and joints by immobilization and when the focus is in other accessible structures, by excision and the general measures referred to above.

The tertiary phase, with local progressive destructive lesions and with at first, high immunity, can be treated advantageously by excision and if near a joint by immobilization by fusion combined with the general measures.

The rule that aspiration is suitable treatment for a tertiary tuberculous abscess is not tenable provided the walls of the abscess and the feeding focus can be removed.

Rules of drainage applicable to foci of pyogenic infection are not suitable for tuberculous foci and tuberculous foci with secondary infection. Excision is the treatment.

The surgeon does not eradicate tuberculosis. He helps the tuberculous patient during a certain phase of the infection to get well, often in a most satisfactory and astonishing manner.

Extract from article by Walton Martin, M.D., New York City; *Bulletin, New York Academy of Medicine, September, 1935, p. 549.*

CONGENITAL ARTERIOVENOUS FISTULA

Report of a Case

Samuel Dessoff, M.D.
Associate Clinical Professor of Medicine
and
Walter K. Angevine, M.D.
Instructor in Clinical Medicine, Georgetown University School of Medicine

Arteriovenous fistulas of the acquired type are relatively common; those of the congenital type, however, are much less frequently seen. Lewis in 1930, reviewing the literature and adding 6 cases of his own, brought the total to 30. Aneurisms of this type must occur, however, much more frequently than the above would indicate, because Horton, in 1932, reported 24 cases of congenital arteriovenous fistulas involving the extremities which had been studied at the Mayo Clinic from June, 1929, to May, 1931. We wish here to report a rather classical case of congenital arteriovenous fistula of the left arm.

Report of Case

The patient, T. B., a colored woman, aged 29 years, stated that since the age of 10 years she had noted that the left hand was different from the right. The first thing observed was that the left hand was becoming larger than the right. At the age of 15 years she noticed that she could not do hard work with this extremity, since this would cause considerable pain. She observed that liniments which evaporated quickly would give her relief but that soaking her hand in cold water would cause severe cramps in the fingers. There was no history of trauma or operation on the extremity. The physical examination revealed no pathology aside from the left hand and forearm. The left arm was definitely longer than the right and the left hand was obviously larger than the right. The veins on the dorsum of the hand and the radial side of the forearm just above the wrist were numerous, distended and tortuous (Fig. 1). The little and ring fingers were greatly enlarged and bluish, due to the presence of large, soft subcutaneous veins. The blood pressure was 100 systolic and 70 diastolic in the right arm and 170 systolic and 70 diastolic in the left arm. The pulse rate was 100, but when pressure was applied just above the fistula the rate dropped to 88 (Branham's bradycardiac reaction). On examination of the left hand it was apparent that the hand was much larger than the right. There was a considerable increase of heat in this extremity the temperature being 2½°F. higher than in the right. A thrill was easily palpable over the radial artery just above the wrist and on the back of the hand just above the base of the thumb. On light touch the thrill was palpable on the ulnar aspect of the forearm from the wrist to the elbow. There was a loud systolic bruit heard over the entire forearm from the elbow to the finger tips, loudest over the radial artery just above the wrist.

The measurements of the upper extremities were as follows:

	Right *cm.*	Left *cm.*
Length of arm from acromioclavicular joint to tip of third finger	72	77
Circumference of arm:		
Below axilla	26	26
Above elbow	22	22
Below elbow	22.8	23
Above wrist	15	17
Length of hand from the head of the ulna to tip of third finger	19.3	20
Longest circumference of hand	20.3	22.8
Circumference of fingers:		
Little finger at base	5.5	10.7
Ring finger at base	5.5	10

The urine examinations and the hemogram were normal. The Kahn test was negative for syphilis. The blood taken from the cephalic vein of the arms showed a striking contrast. That from the right arm was dark in color; that from the left arm was bright red in color and gave the appearance of arterial blood. The oxygen content from the blood of the right arm was 9.1 volume per cent. The oxygen content of the blood from the left arm was 17 volume per cent. An arteriogram could not be successfully made because of poor coöperation.

The general belief at present is that these congenital fistulas are developmental in origin and multiple. Reference is made to the work of Sabin on embryological vessels.

In studying the literature it is noted that probably most of the congenital cases are present in the scalp and extremities, very rarely elsewhere.

The local effects are very interesting. Hypertrophy of the extremity is practically always present in the congenital form in contradistinction to the acquired. This is explained by the fact that the congenital type is present before ossification of the epiphyseal cartilages has taken place and is due to an actual overgrowth of bone. The marked increase in temperature is, of course, due to the increased volume of blood in the extremity.

Trophic changes and cramps produced by exposure to cold are explained by Pemberton and Saint as due to two factors: (1) The diminution of blood flow through the capillaries because of its easier escape into the vein by means of the fistula, and (2) the retarded return of deoxygenated blood from the capillaries because of increased pressure in the veins. These two factors bring about a condition of anoxemia in the tissues affected.

Cardiac enlargement and failure are very rare in the congenital type but common in the acquired. As pointed out by Reinhoff, this is probably due to the slow development of the congenital fistula. Branham's bradycardia test, which was present here, is considered pathognomonic for arteriovenous fistula, and if at first present and later absent may be an indication of beginning cardiac failure.

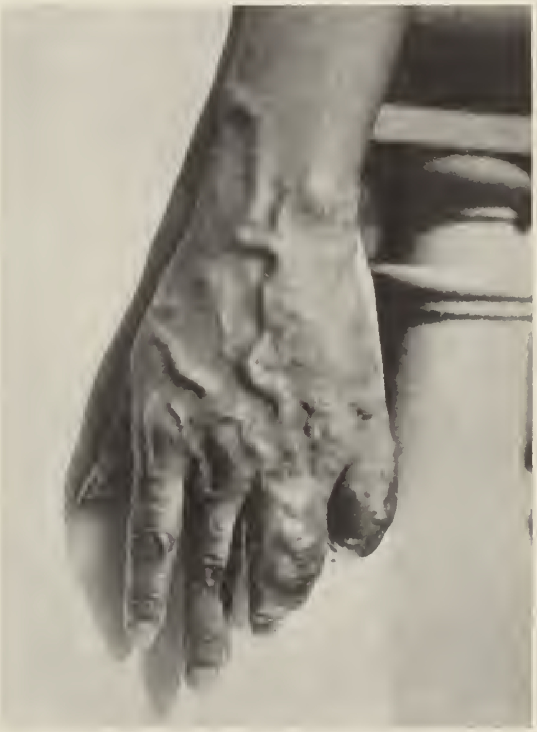


Fig. 1. Dorsum of Forearm and Hand

Note the enlarged tortuous veins and the enlarged little and ring fingers.

Yater (working with G. E. Brown) calls attention to the fact that in a doubtful case the presence of arterial blood in the veins near the fistula is pathognomonic of arteriovenous fistulas; in most cases gross examination is sufficient to determine this. Horton has pointed out that many congenital fistulas may be missed because of the absence of thrill and murmur. He has reported a number of cases in which these signs were lacking and believes that many more cases will be diagnosed if this is remembered.

Surgery offers the only hope in congenital arteriovenous fistulas, but because of the frequent multiplicity of communications it is extremely difficult to totally abolish the arteriovenous shunt. In the acquired type, in which there is usually but one communication, many cases have been cured by operation in which the affected segment of artery and vein is removed. For a discussion of operative procedures one is referred to the article by Pemberton and Saint. Probably the only cure for the congenital type is amputation of the limb, but this need not be done unless cardiac failure arises or there is much pain and discomfort in the affected extremity.

BIBLIOGRAPHY

Horton, B. T.: Hemihypertrophy of Extremities Associated with Congenital Arteriovenous Fistula. J. A. M. A., 1932, **98**, 373.

Horton, B. T.: Medical Aspects of Congenital Arteriovenous Fistula. Report of a Case Involving the Lower Extremity. M. Clin. North America, September, 1935, p. 525.

Lewis, D.: Congenital Arteriovenous Fistulae. Lancet, 1930, **2**, 621, 680.

Pemberton, J. de J., and Saint, J. H.: Congenital Arteriovenous Communications. Surg., Gynec. & Obst., 1928, **46**, 470.

Reinhoff, W. F., Jr.: Congenital Arteriovenous Fistula; An Embryological Study, with the Report of a Case. Johns Hopkins Hosp. Bull., 1924, **35**, 271; also, J. A. M. A., 1924, **83**, 743.

Sabin, F. R.: Origin and Development of the Primitive Vessels of the Chick and Pig. Contributions to Embryology. Carnegie Institute of Washington, 1917, **6**, 61.

Yater, W. M.: Acquired Arteriovenous Fistula. Ann. Surg., 1928, **87**, 19.

Diabetes Insipidus. Treatment with Posterior Lobe Pituitary Powder Intranasally.—Although diabetes insipidus is an uncommon condition, the usual effectiveness of treatment with posterior lobe pituitary extract is universally recognized. Since Blumgart's studies, the convenient intranasal route of administration has been widely used to supplant subcutaneous injections. Most clinicians, however, in using this method have employed liquid pituitary preparations either as a spray or on cotton pledgets inserted into the nose; pituitary jelly has also been used. It has not been generally appreciated that the intranasal insufflation of pituitary *powder* is equally, if not more, convenient and effective. . . .

Summary: In 4 cases of diabetes insipidus the intranasal insufflation of posterior lobe pituitary powder has been used with success. The convenience and lower cost of this mode of administration are emphasized.

Extract from article by Alexander Marble, M.D., Boston; *New England Journal of Medicine, December 5, 1935, p. 1131.*

ABSTRACT OF PAPER READ BEFORE THE SOCIETY

"The Etiology, Symptoms and Diagnosis of Poliomyelitis,"* **Joseph S. Wall, M.D.**

At the outset it would be well to quote a statement by Jacob Heine in the year 1840. Heine was one of the early students of this disease which now bears his name as part of its patronymic (Heine-Medin disease). In a discussion of poliomyelitis Heine stated: "It would be presumptive on my part if I should attempt to give a satisfactory explanation of the etiology of this disease." This dictum holds good even to the present time, for in spite of the enormous amount of research by American and foreign investigators the epidemiology and etiology of poliomyelitis is only partly understood at the present time. Poliomyelitis apparently occurs in epidemic waves which have been noted since the one discovered by Caverley in Vermont in the year 1894. Most severe of all epidemics was that of 1916, which was most extensive in New York City and its vicinity. Lesser epidemics occurred in 1931, 1933 and 1935. During the past year, the epidemic in the adjoining states of Virginia and North Carolina has been of greatest interest to the members of this Society, since it was feared the advances of infection to the north would involve this city, and as a matter of fact the incidence of the disease in Washington was considerably greater during the past summer than heretofore. This incidence is never very great, being between 2 and 3 per 100,000, leaving aside the epidemic years when it may rise considerably above this figure. Morbidity and mortality are difficult to estimate, as the statistics depend upon the recognition and reporting of both abortive and paralytic cases. The incubation period is also uncertain, probably ranging between 7 and 15 to 20 days. The mode of dissemination is not known with exactitude, but the disease behaves very much like other contact diseases, and it is probably spread by healthy carriers and by those in the incubation period of the disease. Some 8 epidemics have been described which were attributable to infected milk. The bearing of age upon the disease has given rise to the misnomer of its common name which might be better designated as "Child Paralysis." In recent epidemics the disease has shown a tendency to involve larger proportions of those above the age of childhood, while in some isolated epidemics occurring in virgin territory it has been known to attack only adult subjects. The influences of sex and race are fairly established, in that males are more frequently involved and the colored race possesses a comparative, although not certain, immunity. Draper has discussed a body type of individual whom he

*Presented October 9, 1935, as part of a Symposium on Poliomyelitis.

believes particularly prone to be attacked by the virus of poliomyelitis. Two theories of immunity are held, one, that a population becomes immune by sub-morbid infection; the second, that with increasing age or "maturation" a nonspecific immunity relative to that shown by diminishing Dick and Schick reactions in scarlet fever and diphtheria respectively protects the greater part of the population. The specific cause of the disease is now felt to be a filtrable virus, minute in size, somewhat resistant to heat and drying, quite resistant to freezing and to the action of most chemicals, other than oxidizing agents. The virulence of this virus, however, may be markedly reduced by chemical agents, upon which fact depends the production of substances used for vaccination against the disease, which are composed of monkey cord either attenuated or killed by chemical agents. The mode of infection is now felt to be due to entrance of the virus into the central nervous system by nerve passage, according to one school, which is in the majority, through the terminations of the olfactory nerve in the nasal chamber. It is the belief of another school that the disease enters through the gastro-intestinal tract, passing thence through the axons of the sympathetic nervous system to the spinal cord. The fact that poliomyelitis attacks most severely those areas of the cord connected to the outlying sympathetic system by gray fibers alone is held to substantiate the viewpoint of its gastro-intestinal entrance. Numerous classifications of the types of poliomyelitis based upon both symptoms and pathology have been suggested. It is well known that during an epidemic many children, as has been shown by Paul and Trask, are afflicted by minor illness, and especially those children in families in which paralytic cases occur. A second group of greater severity of symptoms is classed as the pre-paralytic group. These children show, in addition to acute illness, either gastro-intestinal or respiratory, hyperesthesia, painful back and neck, and upon lumbar puncture a moderate pleocytosis. As one looks forward into the possibilities of the effect of this disease, such cases may be called pre-paralytic, since these children may recover with no trace of muscle weakness or actual paralysis. In retrospect, as one looks back after the recovery of the patient they may with equal propriety be named as non-paralytic. The percentage of cases showing paralysis varies greatly during the progress of epidemics and seems in no small measure to depend upon the accuracy of observation of cases occurring in the practice of physicians, some of whom may recognize and report abortive and pre-paralytic patients while others may not. The distribution of the paralysis is uncertain but most commonly affects the legs, which are not spared if the paralysis is at all extensive. The occurrence of bulbar types, with involvement of the vital centers, is not infrequent, and in some epidemics this form of the disease seems to be in the ascendency. The diagnosis of early abortive cases, those which show some somatic disturbances alone, rest upon their occurrence during the presence of an epidemic, the difficult and expensive neutralization tests which involve the use of monkeys and a certain amount of guesswork on the part of the physician. The pre-paralytic types and florid cases of the disease must be differentiated especially from encephalitis, which is not at all easy, and from various types of meningitis, especially tuberculous meningitis, in all of which the results of lumbar puncture are extremely important in differentiation. Confronted with paralysis, the physician must differentiate the case from postdiphtheritic paralysis, birth palsies, the pseudoparalysis of rickets, scurvy and chorea, as well as that due to injury and disease of bones, joints and muscles. It is well to remember that during an epidemic which strikes terror to the minds of the laity, the occurrence of hysterical paralysis must also be borne in mind.

Some of the Newer Developments in Hyperthyroidism and Hyperparathyroidism.— . . . In order that I may present to you our experiences with blood iodine in thyroid disease, I would like to lay the groundwork by going over the function of the thyroid gland as relates to iodine and its capacity to store and to discharge iodine. . . . The administration of Lugol's solution to a patient with exophthalmic goiter can increase the milligrams of iodine per gram of dried gland from 0.2 of a milligram to 1.5, demonstrating what a tremendous thirst the exophthalmic goiter has for iodine. That is the basis for the fact that patients with toxic goiter are benefited by Lugol's solution, and is the basis of the development of the so-called iodine tolerance test by Mr. Perkin in the Clinic. The patient with hyperthyroidism probably has his symptoms improved by Lugol's solution because the accumulation of colloid in the acini which follows the administration of iodine presses on the blood vessels, presses on the lymphatics (Marine), diminishing thus the ability of the lymphatics to take up thyroxin, and so temporarily improves these patients. David Marine has suggested that the distention of the thyroid acini with colloid produces pressure on the secreting cells, lessening the acini and thus diminishing their activity and also by pressure diminishes the vascularity of the gland. On the other hand, after the gland has become adjusted to this involution, the blood vessels and lymphatics reopen and the symptoms of hyperthyroidism return. It is because of this that iodine is only of temporary value in the treatment of hyperthyroidism. . . .

In one of the cases of hyperparathyroidism occurring in our experience, the tibia and fibula became so decalcified that the longitudinal leg muscles wrinkled the bones. In this case there was the most complete decalcification I have ever seen in any patient. Where have we found these parathyroid tumors, and where may one expect to find them? If we are going to deal with the disease of hyperparathyroidism, we must be familiar with the areas where parathyroids can be located and so where parathyroid tumors can be found.

In the course of the 400 thyroids . . . which Dr. Cattell reduced to a powder, we learned that parathyroid bodies are often intrathyroid, and in that patient in whom the tibia and fibula were wrinkled two normal parathyroids had been removed in another clinic but no tumor could be found . . . They looked within the thyroid and found it there.

We have, on surgically removed thyroids, found transplanted and proven by microscopic section 190 parathyroids. That has given us an unusual opportunity to demonstrate the location, normal and abnormal, of parathyroids.

. . . I feel certain all of us are permitting patients with parathyroid tumors to pass through our clinics unrecognized. I think every patient who has lost height, every patient who has developed round back, every patient who has unexplained nerve root pains of the arthritic type, and every patient who has kidney stones should be investigated for a possible parathyroid adenoma by having his blood calcium, blood phosphorus and phosphatase determined. If he has a high blood calcium and a high phosphatase, he has a hyperparathyroidism due either to an adenoma of the parathyroids or possibly a hyperplasia of the parathyroids, and no matter how difficult it is, if you will search far enough you will find this parathyroid adenoma. If you remove it the bones will recalcify. After you remove the parathyroid adenoma, turn the patient over to an orthopedist, who will put him in the best position so that when the bones do recalcify they will do so in the best possible position and not in the worst.

Extract of article by Frank H. Lahey, M.D., Boston; *Minnesota Medicine, December, 1935, p. 761.*

MEDICAL ANNALS

of the

DISTRICT OF COLUMBIA

Editorial Office, 1718 M Street, N. W.

EDITORIAL STAFF

Coursen B. Conklin, A.M., M.D., *Managing Editor*
Wallace M. Yater, A.B., M.D., M.S., *Editor*

Subscription $2.00 per year Single Copies, 25¢

RESEARCH

A Neglected Function of the Hospital

If one should take a poll among a large group of physicians for a definition of medical research, the typical answer would very probably include a description of a laboratory with mystifying instruments, an animal room and a staff of experimenters, few of whom would be graduates in medicine.

It should be said that there is no desire to belittle the enormous amount of laboratory work that has been done in the past 20 years which has overshadowed the possibilities for research within the hospital ward. The army of workers in cancer alone has absorbed much of our attention and focused it upon a great problem, still without a satisfactory solution, while just "under our noses" are opportunities for research which can be carried on within the walls of the hospital.

The hospital has for its object, primarily, the treatment and cure of its patients, but in many instances goes no further. From the amount of data that has accumulated through properly kept records, a storehouse of valuable information is untouched and uncorrelated. There is no coördinated effort, in many even well-managed hospitals, to compile statistics from the records to supervise the treatment of many diseases or to investigate clinical problems by clinicians or the hospital laboratories. It is a matter of common knowledge that in many hospitals the medical and surgical services change every few months, each service with its own visiting group, each group in many instances almost independent of the other in their clinical methods. For example, one surgeon may treat empyema by the "closed method" and on the change of service the next attending surgeon will use "open drainage" and, without knowledge or interest in what occurred on the previous service, proceeds in stereotyped fashion with his cases. The same is true of the medical service, as it applies to pneumonia, arthritis, and many other diseases. There is a remedy for the apparent apathy or self-sufficiency on the part of the staff.

Members of the hospital staff should realize that they must work as a group, as well as individuals, for the welfare of the hospital and the patient. To accomplish this successfully the various services (medical, surgical, obstetrical and laboratory) could be organized so that one member of each group would be a coördinator, whose duty it would be to unify his entire group. He would familiarize himself with all activities of the various departments of his group for a period of a year, or longer, and in the capacity of an adviser bring the members of his group together to discuss certain clinical problems. The coördinators from these groups would then collectively constitute a Committee on Hospital Research which would direct and assist in research problems of a clinical nature.

Any member of the staff desiring to investigate a phase of medicine or surgery could submit to this committee a written statement of the proposed investigation. If the committee should deem the study a worthy one, authorization would be given, the investigator being furnished with facilities for carrying on the research.

It should be mandatory upon each junior visiting member of the staff, usually designated as associate, to contribute some individual work, from the wards or records of the hospital, at least every 2 years. These contributions would serve two purposes, first, as a real addition to medical knowledge, and second, as a consideration in promotion on the staff. Graduates of one year's hospital experience could be granted a fellowship at a small salary, to assist in the research, and this would not only relieve an overworked clinician, but would serve as an excellent post-graduate course for the fortunate intern. The general plan briefly outlined makes the hospital a more important component in medical research and at the same time stimulates interest of its staff and keeps it in closer and more continuous contact with the institution.

There is a wealth of medical and surgical information in every hospital that now remains untouched because of lack of organization. Some of our most outstanding advances in medicine have come from the bedside and it is time to realize that the hospital and its staff are not doing their full share unless an effort is made to utilize its resources as they apply to research.

C. S. W.

MEDICAL-DENTAL SERVICE BUREAU, INCORPORATED

Report of Executive Director

November 14, 1935

The financial report for the period ending October 31, 1935, indicates that the Medical-Dental Service Bureau, chiefly as a result of its publicity and new business campaign, which really did not reach its first peak until the first week in October, had an increase in business from medical, dental and hospital sources, exclusive of Central Admitting Bureau accounts, of 46.3 per cent. The gross revenue of the Bureau from date of its inauguration, March 1, to the end of October reached $103,710.70. It will be recalled that a revenue of $120,000.00 for the first full year of operation was predicted. It will be readily seen that this figure will be greatly exceeded, and, should the monthly business actually experienced in October continue, will probably reach $175,000.00 for the year.

For the first 13 days of November, the cash taken in over the counter was $4,895.50 against $3,036.00 for the same period of October, representing an increase of 54 per cent. This figure has in the past proved a reliable barometer of the Bureau's activities and bespeaks a comfortable increase in new business for November over October.

Coöperation of the insurance companies operating in the District of Columbia, particularly those employing the debit system of collections, has been obtained to the end that the holders of small industrial policies will obtain information of the service rendered by the Medical-Dental Service Bureau and be assured of prompt medical attention. It has been found that the insurance collector frequently is approached by the holders of small industrial policies for cancellation or loans for the purpose of meeting medical and hospital treatment. As practically none of these small policies have a loan or cash surrender value prior to the tenth anniversary of the policy a number of these insurance companies are coöperating with the Bureau in delivering our booklets and recommending our Bureau to their clients. The professions and hospitals will incidentally have opportunities heretofore not available of securing assurance of remuneration for services.

The Bureau on November 10 mailed to members of the professions 326 checks, among which there was one for $234.90 and several over $150.00.

Arrangements have just been completed with W. P. A. officials in St. Louis, Newark, and Washington to pass all persons on their rolls requiring medical and hospital attention through our Bureaus in order that they may be assured of proper referral to private physicians and hospitals whenever practical.

W. P. A. officials, of course, will coöperate with the Bureau in the matter of following up agreed upon payments.

The Medical-Dental Service Bureau of St. Louis writes us with an air of justifiable pride that in their first month of operation their gross revenue totalled over $7,000.00 or 350 per cent above Washington's first month. The St. Louis Bureau is a duplicate of our own and was organized and installed by our staff.

TRANSACTIONS OF THE WASHINGTON SOCIETY OF PATHOLOGISTS

A regular meeting of the Washington Society of Pathologists was called to order at 1:40 P.M., November 2, 1935, in the Army Medical Museum by the President, Dr. Wallace M. Yater. There were 98 members and guests present. The minutes of the meeting of October 5, 1935, were read by the Secretary, and approved.

Scientific Papers

1. "BONE TUMORS." LANTERN-SLIDE DEMONSTRATION. **Charles F. Geschickter, M.D.**, Baltimore.

Approximately one half of all primary neoplasms of the bone are related to pre-cartilaginous connective tissue. The tumors in this group include the osteochondromas, the chondromas, the chondromyxosarcomas and in addition osteoblastic sarcoma of a more highly differentiated bone-forming type; the first three of these lesions represent different stages of the same pathologic process, the basic tissues comprising them—connective tissue cartilage and bone—being present in varying amounts. Thus, the transition repeats the sequence by which the skeleton is derived in the embryo.

Osteochrondromas are benign tumors usually occurring in persons between the ages of 10 and 25 years. They are situated near the end of the long bones and form bony outgrowths with a thin cartilaginous cap. The symptoms are mild and of long duration. The X-ray gives a typical picture. Histogenetically these tumors are an exaggeration of a normal bony protuburance intended for the anchoring of an important tendon.

The typical chondroma is a benign lesion occurring in the small bones of the hands and feet or about the ribs and spine in patients between the ages of 20 and 30 years. The typical X-ray film shows a small translucent and rarefied area occurring centrally in the shaft of the small bone, the cortex about the lesion being thinned and expanded. New bone formation or calcification is not prominent in these lesions, the bulk being composed of fairly normal adult cartilage. Most of the tumors represent histogenetically supernumerary joint cartilages. The prognosis of the more cellular lesions in the small bones associated with fetal cartilage and myxoma is benign; whereas the less cellular tumors of larger size occurring in such bones as the sternum and ribs must be looked upon as potentially malignant.

Primary chondromyxosarcoma is a periosteal osteogenic sarcoma arising primarily in young people at the sites where tendons insert directly into bone, generally between the years of 14 and 21. The favorite sites are about the knee, in the lower femur or in the upper tibia. The duration of symptoms is brief. In the X-ray the tumor is faintly visible as a subperiosteal shadow. The tumor does not involve the cortex or medullary cavity until late in the disease. Histologically this sarcoma is characterized by a transition of connective tissue to myxoma and thence to fetal and adult cartilage followed by bone formation.

Secondary chondromyxosarcoma may complicate a benign exostosis, benign chondroma or benign multiple skeletal diseases such as Paget's osteitis deformans or hereditary deforming chondrodysplasia. Most often the patients are between the ages of 35 and 55. The tendency is for the regions about the upper humerus, ribs and heel to be involved. This is a tumor which Dr. Bloodgood originally called "pure myxoma of bone" because of the myxomatous character of the proliferation of the connective tissue elements.

Sclerosing osteogenic sarcoma is a highly differentiated form of osteogenic sarcoma derived from the primitive perichondrium after this structure has been transformed into periosteum and does not ordinarily contain cartilage. The characteristic "sun ray" picture in the X-ray film presents dense radiation of new bone in the periosteal zone in the metaphysis of the long bones of patients between 15 and 25 years. The average duration of symptoms is under 10 months. Histologically, the tumor is composed of large osteoblasts derived from connective tissue with much intercellular osteoid substance scattered in a disorderly way throughout the growth; the neoplasm being an exaggeration of the function of the osteogenesis.

Osteolytic form of osteogenic sarcoma is a destructive form arising in the region of the marrow cavity in the shaft or long bone. It shows an unusual tendency to produce a pathologic fracture. In the X-ray a central area of rapid bone destruction which dissolves the cortex without expansion and with definite periosteal involvement can be seen. The tumor is related histogenetically to the formation of cancellous bone from the endosteum which normally follows in the wake of calcified cartilage. Since sufficient amounts of this calcified cartilage are absent at the site and age when these tumors arise ossification is incomplete and an osteolytic tumor is the result. Microscopically there are large malignant spindle cells and round osteoblasts with numerous mitotic figures and a small amount of poorly formed, intercellular osteoid tissue. Giant cells present in the lesion represent an attempt to phagocytose the incompletely formed osteoid tissue.

Evidence is given supporting the kinship of giant cell tumors and phases of osteitis fibrosa cystica and the normal developmental processes underlying these lesions are emphasized. The age of patients affected with a bone cyst is less than 20 or 21 years. The lesion occurs usually in the humerus, femur or tibia and runs a protracted and benign course. Pathologic fracture is usually the only acute phase. In the X-ray this tumor shows a central bone-expanding defect, the contours of which are symmetrical and have a smooth and intact outline. Grossly and microscopically, the lesion shows a healing reaction of fibrous tissue and new-bone formation about the cavity which contains the remains of old hemorrhage or straw-colored fluid. Progressive, diffuse and multiple forms of osteitis fibrosa should be carefully studied from a metabolic viewpoint. Lowering of the serum phosphorus with hypercalcemia indicates parathyroid gland disease. Variants of the bone cysts include the acute bone cysts or giant cell variant, progressive and multiple osteitis fibrosa, and the latent bone cyst, a quiescent lesion which is usually accidentally discovered in adults.

Benign giant cell tumor is a disease of adults, is grossly related to the solitary bone cyst, but has a shorter duration of symptoms, a greater tendency to progress and is invariably associated with an epiphysis where osteogenesis via cartilage occurs. The lesion is most frequent in the lower end of the femur, upper end of the tibia and lower end of the radius. In X-rays there is a central defect situated asymmetrically in an epiphysis within a bone shell which is usually perforated. Histogenetically the tumor is related to the resorption of calcified cartilage by giant-cells which occurs as a step in normal bone growth in the region of the epiphysis until late in life, and microscopically this is shown by many large multinucleated giant cells predominating in a stroma of small round cells.

Ewing's tumor is a neoplasm occurring in the first two decades of life, involving most frequently the femur and tibia and sometimes metastasizing late in the disease to other bones. The disease never primarily involves an epiphysis. It shows the usual symptoms of sarcoma of bone, pain and tumor, followed by dysfunction. Histologically the tumor is composed of small round cells with dense nucleiand scanty cytoplasm simulating a lymphosarcoma. Histogenetically the growth appears to arise within the lymphatic channels of the bone. Combined surgery and irradiation gives the best results in treatment. The tumor is highly sensitive to irradiation.

Multiple myeloma develops in many foci in the red marrow of adults, the ribs, spine, pelvis and upper ends of the femurs being most frequently affected, generally in the sixth decade. Microscopically, the tumors are composed of a plasma-like cell with an eccentric nucleus containing the spoke-like arrangement of chromatin. There is very scanty amount of intercellular substance. The disease pursues a fatal course, the average duration of life being approximately two years.

Attention is called to the various forms of myositis ossificans. The disease frequently follows trauma, there being hemorrhage into the muscle with formation of hard tumors, and ossification occurs within a period of 3 to 6 weeks. Histogentically the source of new bone is fibrous strands in the muscle, or tags of pre-cartilaginous embryonic connective tissue displaced from the primitive periosteum. The microscopic picture may simulate osteogenic sarcoma. It is a mistake to intervene surgically in the early stages of this condition since the growth may be stimulated and recurrence may result.

Finally, it must be remembered that tumors of the bone are not dependent solely upon the number of different structural elements such as connective tissue, cartilage and bone comprising the skeleton, but also upon the developmental steps necessary for these component tissues to reach the adult state. Most neoplasms of bone are associated with phases of osteogenesis, and it is in connection with such transitions in growth that the primary tumors of the skeleton arise.

2. "Roentgenologic Features of Some Types of Bone Tumor." **Claude Moore, M.D.**, Washington.

The more simply the classification of such a large group as bone tumors, the less likelihood there will be of confusion, and the more comprehensible the diagnosis will be to the clinician or the surgeon. The first thought of the radiologist on seeing a bone tumor of any kind, should be, is it primary or secondary? If it is secondary, then it is unquestionably a metastatic condition, from a malignant neoplasm, with a serious prognosis, of vital concern to the patient. The primary source of the tumor should be sought, and a radiologist of broad experience can frequently suggest the location of the primary tumor by judging the appearance of the metastatic area. Sometimes he can be sure enough of this opinion to save the patient further painful and expensive examinations.

If a tumor is a primary bone tumor, the next consideration is whether it is a malignant tumor or a benign one. If the tumor is a malignant one, the chances of it being an osteogenic sarcoma are extremely great. Some of the other rarer forms of malignant primary bone tumors are endothelial myelomas (Ewing's sarcoma) and multiple myelomas. Other tumors may arise in the soft tissues so near bone and joint structures as to make it difficult or impossible to determine whether they are true bone neoplasms.

Benign bone tumors are of such wide variation that their classification is dependent on the predominating types of tissue that go to make up their structure, and unless they are of the osteogenetic type, the radiologist, without coöperation of the pathologist and a biopsy, can only in a broad way suggest their nature. The tendency has been too great to make the classification of all bone tumors, both benign and malignant, entirely too large. Each investigator gives different names to tumors, depending on the types of tissue they contain and their site of origin and position about or in the bone.

Another classification that causes interest is whether bone tumors are osteogenic or osteolytic. Some of the benign and the malignant neoplasms may be both, thus greatly complicating the diagnosis except by thorough investigation and examination. For example, osteomas are osteogenetic and are always benign, but some very malignant osteogenic sarcomas have marked osteogenetic properties, and the rapid and accurate recognition of them is of vital importance to the patient. On the other hand, giant-cell tumors and chondromas are osteolytic and bone destroying, and they are benign in type.

So much progress has been made in the past decade in the study of deficiency diseases, the endocrine glands and the clacium and phosphorus metabolism in the body that the positive roentgenologic diagnosis and classification of certain bone conditions have been less accurate than was formerly believed to be possible. Sometimes now the best trained radiologists hesitate to make a diagnosis of generalized metastasis to bones from a proven carcinoma occurring elsewhere in the body, without consultation with the clinician to know somewhat of the patient's general condition, because many cases of beginning osteitis fibrosa cystica or hyperparathyroidism are difficult to differentiate by roentgenologic methods from metastatic malignant lesions or multiple myeloma. Many extremities are needlessly sacrificed because a diagnosis of osteogenic sarcoma was made, and the patient had only a benign giant-cell tumor.

At other times the pathologist may be equally at fault. Unless he is fully acquainted with some of the rarer forms of bone neoplasms a mistaken diagnosis of a malignant condition may be made in a very cellular type of osteofibroma, or a giant-cell tumor, or even some inflammatory condition. McCarty has stated that a young, rapidly growing callus about a fracture is very often impossible to differentiate from an osteochondroscarcoma. Sometimes the surgeon is at fault because the material furnished the pathologist for biopsy is either not from the lesion itself or it is from adjacent necrotic areas, organized blood clot, etc. This is particularly true of biopsies of giant-cell tumors. Thus it behooves all to coöperate and pool their abilities before making any definite diagnosis. It is only by knowing all the possible facts that accurate opinions can be given and the mortality and morbidity reduced.

In discussion, **Dr. Philip O. Pelland** asked the indication for biopsy.

Dr. Geschickter answered that biopsy was indicated at any time if the necessary treatment could be given at once; that there is no reason for biopsy in a case in which the problem is to decide between multiple myeloma versus secondary carcinoma, for the treatment is the same in either condition; and that one should never amputate without a previous biopsy.

Dr. Walter Freeman asked what Dr. Geschickter included in the term "myeloma."

Dr. Geschickter answered that he included three types, namely, multiple myeloma, endothelio-myeloma and chloroma.

Presentation of Cases

Drs. G. A. Alden and H. E. Ragle presented a case of an 8-year old Hawaiian boy who died of asphyxia and had small tumor masses on the skin of the face and trunks, first noticed 6 months before death. In the discussion it was generally decided that a clinical history and blood examinations were necessary before drawing conclusions. **Dr. Raymond O. Dart** considered angiosarcoma; **Dr. Walter Freeman**, reticulum cell sarcoma; **Dr. Wallace M. Yater**, leukemia; **Dr. L. M. Milstead**, neuroblastoma.

Dr. P. M. Ashburn presented the case of a white seaman of 47 with a slowly growing tumor of the skin of the back first noticed 2 years ago. When removed it was about the size of a hickory nut. Clinical and postoperative diagnosis was keloid; histopathological diagnosis, keloid, inflamed. In the discussion, it was generally thought that a blood count should be had. **Dr. Raymond O. Dart** considered leukemia; **Dr. Oscar B. Hunter**, cutaneous Hodgkin's disease; **Dr. Walter Freeman**, keloid.

Dr. P. M. Ashburn presented also the case of a white man of 35, who developed swollen glands of the left side of the neck following a severe attack of tonsillitis several months ago. Two nodules, supposedly cervical lymph nodes, were removed from the neck at the central, posterior border of the sternocleidomastoid muscle. Grossly the glands were cystic and contained about 20 cc. of yellowish fluid. The histopathologic diagnosis was papillary cystadenomata of thyroid origin. **Dr. Oscar B. Hunter** considered a cyst of aberrant or supernumerary thyroid gland; **Dr. Raymond O. Dart**, branchial cyst; **Dr. Elbert DeCoursey**, branchial cyst.

Dr. Walter Freeman presented 2 cases.

1. A case of bronchogenic carcinoma of the right upper bronchus with metastatic carcinoma of the pericardium and liver. There was a traumatic lesion of spinal cord with extreme swelling of the axis cylinders.
2. A case of a white man of 47, with a clinical diagnosis of carcinoma of the root of the left lung, with metastasis to the brain. Autopsy revealed a firm, indurated mass at the root of the left lung underlying the phrenic nerve but completely surrounding the vagus nerve before it gave off the recurrent laryngeal branch; metastasis occurred in the pericardium, lymph nodes, adrenals and brain. A fairly large tumor nodule was present in the left cerebellar hemisphere. The exact site of origin of the tumor has not yet been determined. The bronchi on the left side was not involved. In discussion, **Dr. R. D. Lillie** remarked that the sections looked very benign for a metastasizing tumor.

Dr. Oscar B. Hunter presented a case of a man of 26, with a mass of glands on the side of the neck of sudden development. The blood count shows secondary anemia. Wassermann and Kahn tests were negative. The tuberculin test was negative. **Dr. R. D. Lillie** considered this an infectious granuloma; **Dr. G. A. Alden**, glandular fever.

Dr. Wallace M. Yater gave the history of a case of bilateral gangrene of the feet due to the therapeutic use of ergotamine tartrate for pruritus. He showed arteriograms and sections of the vessels of the legs. The latter were markedly contracted at intervals and contained thrombi between the most contracted areas. There was hyaline degeneration of the walls.

The second part of the meeting was held in the histology room at 2:45 P.M. The following visitors were introduced: Drs. Watts, Ragle, Moore, Walsh, Cake, Abbey and Gilmore. There were 18 members and guests present. The following were voted to full membership: Drs. H. E. Ragle, E. S. Lowe, H. R. Gilmore, Jr., C. P. Cake, J. W. Watts, J. J. Mundell, Margaret M. Nicholson, Richard A. Kearny and M. P. Schultz.

The meeting adjourned at 4:20 P.M.

COMING MEETINGS

Society

Wednesday, January 8, 1936: Stated Meeting. Reports of officers and committees; election of members.

Wednesday, January 15: The Section on Internal Medicine will furnish the program for the general Society:

"Methods in the Study and Treatment of Food Allergy." Illustrated with lantern slides. Warren T. Vaughan, M.D., Department of Medicine, Medical College of Virginia, Richmond.

Wednesday, January 22: The Mid-Atlantic Branch of the American Urological Association will furnish the scientific program for the Society.

Wednesday, January 29:

"Proctologic Problems of the General Practitioner, the Diagnostician and the Surgeon," Louis A. Buie, M.D., Mayo Clinic, Rochester, Minn.

ANNUAL SCIENTIFIC ASSEMBLY

May 6–7, 1936

Active preparation for the Annual Scientific Assembly for 1936, under the direction of Dr. Victor R. Alfaro, began with a meeting of the subcommittee chairmen, held on November 29, with a full attendance. The arrangements for papers and dry clinics, the complimentary luncheon at the Mayflower, and the public meeting, are being planned. The Program Committee expects to have a complete schedule for release by February 1. Members desiring to present material would do well to furnish the committee with a prospectus.

The chairmen in charge of arrangements follow:

Victor R. Alfaro, *General Chairman*
Charles H. McEnerney, *Attendance*
Philip A. Caulfield, *Luncheon*
Joseph F. Elward, *Halls and Exhibits*
Earl R. Templeton, *Program*
Robert E. Moran, *Surgical Clinics*
R. Massie Page, *Medical Clinics*
Antoine Schneider, *Finance*
Raymond W. Murray, *Printing*
Edmund M. Ellerson, *Banquet*
W. Preston Haynes, *Entertainment*
Coursen B. Conklin, *Registration*
G. Victor Simpson, *Public Meeting*
Margaret M. Nicholson, *Women Physicians*
R. Lomax Wells, *Woman's Auxiliary*
P. S. Constantinople, *Publicity*

NEWS AND PERSONALS

Georgetown University

Inauguration of New President

On November 23, 1935, with fitting ceremony, a new president, The Reverend Arthur A. O'Leary, S. J., Ph.D., was inaugurated. Dr. O'Leary succeeds the Reverend W. Coleman Nevils, S. J., who for a number of years was active, not only with affairs of his office but in civic Washington. Dr. Sterling Ruffin, appointed Dr. James A. Cahill, Jr., officially to represent the Society at the inauguration.

Smith-Reed-Russell Lecture

George Washington University School of Medicine

November 26, 1935

The guest speaker was Dr. Siegfried J. Thannhauser, late of the Freiburg, Germany, and the Boston Dispensary, whose subject was "Cholesterol: Its Chemical, Physiological and Clinical Aspects." At the Cosmos Club the same evening, the third annual banquet was held. The speakers included Captain Harold W. Smith, Commandant of the United States Naval Medical School; Colonel Joseph F. Siler, Director of the United

States Army Medical School; and Dr. Warren F. Draper, Assistant Surgeon General, United States Public Health Service. Dr. Thannhauser, in a brief address, gave a few observations on the present medical situation in Germany.

December 10, 1935

The guest speaker was Dr. Thomas M. Rivers, of the Rockefeller Foundation. Subject: "Filterable Virus Diseases of the Central Nervous System."

SOUTHERN MEDICAL ASSOCIATION

The St. Louis meeting was largely attended, the total registration being 4,243. It was generally felt that the exhibits and papers exceeded the established fine standards. The following members of the Medical Society of the District of Columbia were registered:

Drs. W. A. Applegate, Joseph B. Bogan, Cline N. Chipman, Frederick O. Coe, Coursen B. Conklin, Edgar P. Copeland, William T. Davis, Harry A. Fowler, Walter Freeman, Leslie T. Gager, J. Bay Jacobs, James P. Leake, Ralph M. LeComte, Bolivar J. Lloyd, William B. Marbury, Joseph J. Mundell, William P. Reeves, H. H. Schoenfeld, F. C. Schreiber, Francis G. Speidel, George B. Trible, J. Russell Verbrycke, Jr., and Eugene R. Whitmore.

WOMAN'S AUXILIARY

Active in Providing Christmas Stockings for Needy Children

The fine work of providing a joyous Christmas for destitute children, members of the In-Bed-Club, will be accomplished this year. Mrs. Arch L. Riddick, chairman of the Public Relations Committee, with the able assistance of Mrs. Stuart O. Foster, Mrs. Don Johnson and Mrs. Michael J. McInerney is now collecting toys sufficient for 100 stockings. The committee announces that donations of money, clothing, magazines, clippings and pictures for this worthy cause will be greatly appreciated.

Card Party and Bazaar

On December 6, from 1 to 5 P.M. in the Medical Society Building, was held a most successful bazaar and card party. Mrs. C. N. Chipman, chairman of the Ways and Means Committee, was in charge of arrangements. She was assisted in her work by Mrs. Harry A. Fowler, Mrs. Raymond T. Holden, Mrs. Cyrus W. Culver, Mrs. Clifton Robert Wallace, Mrs. James A. Flynn, Mrs. Frederick O. Roman and Mrs. Robert Howe Harmon.

The Auxiliary, through these measures, has established a fund from which it has so generously provided the building with many useful and decorative furnishings. The present officers include:

Mrs. E. L. Morrison, President; Mrs. R. Thomas West, First Vice President; Mrs. Eugene R. Whitmore, Second Vice President; Mrs. James W. Esler, Recording Secretary; Mrs. Edgar M. McPeak, Corresponding Secretary; Mrs. F. X. McGovern, Treasurer; Mrs. Grant S. Barnhart, Historian.

THE NEW PHARMACOPOEIA

*The U. S. P. Board Announces the Release Data and the Official Date for the U. S. P. XI**

The new Pharmacopoeia, the Eleventh Revision, will be available on December 16, next. This date has been fixed by the Board of Trustees of the United States Pharmacopoeial Convention to enable the publishers, the Mack Printing Company of Easton, Pennsylvania, to place books on sale in all parts of the country simultaneously.

As directed by the U. S. P. Convention, the Board of Trustees has also fixed the date when the standards of the new Pharmacopoeia shall become official, superseding the Tenth Revision. *This date is June 1, 1936.*

The following articles have been added to the Pharmacopoeia:

Acriflavina, Acriflavinae Hydrochloridum, Aethylenum, Aethylhydrocupreinae Hydrochloridum, Aethylis Oxidum (Solvent Ether), Antitoxinum Scarlatinae Streptococcicum, Bismuthi et Potassii Tartras, Calcii Creosotas, Calcii Gluconas, Calcii Hydroxidum, Carbo Activatus, Carbonei Dioxidum, Chlorobutanol, Digitalis Pulverata (Biologically standardized), Emulsum Petrolati Liquidi (50 per cent), Ephedrina, Ephedrinae Hydrochloridum, Ephedrinae Sulfas, Erythritylis Tetranitras Dilutus (Erythrol Tetranitrate), Extractum Hepatis, Ferri et Ammonii Citrates Virides, Fluoresceinum Solubile, Histaminae Phosphas, Hydrargyri Succinimidum, Iodophthaleinum Solubile, Liquor Ergosterolis Irradiati (Viosterol), Liquor Hepatis, Liquor Hepatis Purificatus, Liquor Histaminae Phosphatis, Liquor Parathyroidei, Liquor Sodii Hypochloritis (4 per cent), Merbaphenum, Neocinchophenum, Oleum Iodatum, Oleum Maydis, Oleum Morrhuae Nondestearinatum, Oleum Rosae, Phenacainae Hydrochloridum, Phenobarbitalum Solubile, Pulvis Chiniofoni, Serum Antimeningococcicum, Serum Antipneumococcicum-I, Sodii Perboras, Sodii Stearas, Stomachus, Tabellae Glycerylis Trinitratis, Theophyllina cum Ethylenediamina, Theophyllina cum Sodii Acetate, Tinctura Iodi Mitis (2 per cent), Toxinum Diphthericum Detoxicatum, Toxinum Diphthericum Diagnosticum, Toxinum Scarlatinae Streptococcicum, Toxitabellae Hydrargyri Bichloridi Parvae, Tryparsamidum, Tuberculinum Pristinum, Vaccinum Rabies, Vaccinum Typhosum, Vaccinum Typho-paratyphosum.

For the decennial period 1930–1940, the following constitutes the list of officials: Drs. W. A. Bastedo, *President;* L. E. Warren, *Secretary;* Samuel L. Hilton, *Treasurer;* E. Fullerton Cook, *Chairman, Committee on Revision; Board of Trustees:* James H. Beal, *Chairman,* William B. Day, *Secretary,* Samuel C. Henry, S. Solis Cohen, E. Fullerton Cook, W. A. Bastedo, E. F. Kelly, W. Bruce Philip.

---

*It may be of interest to know that the U. S. Pharmacopoeial Convention was organized January 1, 1820, incorporated June 11, 1900.

SURGEON GENERAL'S LIBRARY

Recipient of Collection on Italian Mineral Waters and Hygiene, Presented by Dr. E. C. Richardson

The Army Medical Library, Washington, D. C., has been given an important collection on Italian mineral waters and hygiene by the Emeritus Director of Princeton University Library, Dr. Ernest Cushing Richardson. Dr. Richardson is also Consultant in Bibliography and Research of the Library of Congress.

The collection, numbering approximately 3,000 publications of the eighteenth and nineteenth centuries, was bought by Dr. Richardson in Europe some years ago as one of a series of experiments in coöperative selection, purchase and cataloging. The chief basis of the collection is a set of nearly 2,000 items on Italian mineral waters made by the former Superintendent of Public Health of Bassano, Italy. Material of this sort, consisting largely of pamphlets, is very difficult to obtain in the regular book-trade.

In addition, the gift includes some 60 volumes of periodicals, and a few books on medicine of which the most outstanding is the "Corporis Humani Anatomiae," Naples, 1718, of Philippus Verheyen (1648–1710).

BOARD OF CONSULTANTS

Organized for Assisting the Health Officer in Placing Indigent and Semi-indigent Patients Suffering from Tuberculosis

Upon recommendation from the Committee on Public Health, the Society unanimously adopted a resolution to lend assistance to the Health Officer in the placing of patients who are indigent or semi-indigent, suffering from tuberculosis. The roentgenological survey now in progress in this city has to date made 8,176 chest pictures. These are being read by a committee of local radiologists and clinicians. Upon finding evidence of tuberculosis the problem arises of giving the individual the best chance for recovery and at the same time minimizing the opportunity for transmission of the disease. The Board will act only in coöperation, when requested by the attending physician, and in the instance of the indigent or semi-indigent patient with no attending physician, according to its judgment. The shortage of local beds for hospitalizing the tuberculous individual is one of the urgent problems needing solution.

Board of Consultants, as recently appointed from the membership by the President:

J. W. Peabody, chairman; A. Barklie Coulter, Hill Carter.

Committee on Interpretation of X-ray Findings:

Claude C. Caylor, Arthur C. Christie, F. O. Coe, Worth B. Daniels, George Dewey, Joseph F. Elward, Thomas A. Groover, Isidore Lattman, Marvin M. McLean, Edgar M. McPeak, Edwin A. Merritt, A. B. Moore, Claude Moore, L. S. Otell, R. R. Rathbone, Ernest F. Sappington, R. Lomax Wells, James E. Wissler.

PERSONALS

DRS. WALTER ATKINSON and MARVIN M. MCLEAN, respectively, read papers: "Breast Tumors," and "The Differential Diagnosis of Obscure Fevers," before a meeting of the Louis Mackall Medical Society at the University Club, November 11, 1935. On December 9, the program included DR. NORVELL BELT, "Recent Wrinkles in Urology," and DR. WILLIAM W. CHASE, "Primary Carcinoma of the Gallbladder with Two Case Reports."

DR. JAMES A. CAHILL, JR., read a paper, "Some Surgical Considerations of the Acute Abdomen," at a meeting of the New Haven County Medical Society at Waterbury, Connecticut, on November 14, 1935.

DR. P. S. CONSTANTINOPLE gave at the meeting of the Clinical Club of Washington, held on December 3, 1935, at the Cosmos Club, a case report: "An Ulcer High on Nasal Septum, Proved to be an Initial Syphilitic Lesion." Mr. Eugene Meyer, editor and owner of the Washington Post, recited interesting reminiscences and outlined the modes of gaining a scientific estimate of public opinion.

DR. LESTER NEUMAN addressed the District of Columbia Society of Clinical Laboratory Technicians on the subject, "Monocytic Leukemia," at a meeting held at Gallinger Municipal Hospital, October 3, 1935.

DR. NORMAN P. SCALA, with DR. E. A. SPIEGEL, read a paper by invitation, "Pupillary Reaction in Experimental Lesions of the Midbrain," at a meeting of the Philadelphia Neurological Society, College of Physicians, Friday, November 22, 1935.

LEGISLATION

UNIFORM NARCOTIC DRUGS ACT

Unanimous endorsement was voted by the Medical Society of the District of Columbia, in session on the evening of December 11, of the Uniform Narcotic Drugs Act, which will be introduced into Congress at the coming session. The Act, which has already been put in force in 28 states and which has the approval of the American Bar Association and the American Medical Association, would give the local Superintendent of Police and the Health Officer police powers over traffic in narcotic drugs in the District of Columbia. It was explained that existing Federal laws can under the constitution be concerned only with the taxing power of the Federal Government, and that up to this time, except where that taxing power is specifically violated, there is no law empowering local police in this city to take jurisdiction. The passage of a uniform act in the several states and territories governing narcotic traffic will give no haven across state lines to those guilty of illegal distribution.

LIMITATION OF SALE OF BARBITURATES AND ALLIED DRUGS

Endorsement was also given by the Society to a proposed amendment to the Act regulating the practice of pharmacy which will prohibit the sale of barbital and similar hypnotic drugs except on prescription. This group contains such well known products as barbital, veronal, trional, sulphonal, amytal, luminal, allonal and allied drugs. A recent survey made by the Police Department of Washington has shown that within 90 days 35 local drug stores sold nearly 150,000 tablets of 5 of these products alone. It is expected that the restrictions in this amendment will make much more difficult accidental self over-dosage which has been responsible for numerous deaths.

GALLINGER MUNICIPAL HOSPITAL

Acute Shortage of Nurses and Other Personnel

The Medical Society of the District of Columbia, at its meeting held December 11, 1935, unanimously voted to support legislation which would restore to the local Hospital Budget, funds for maintaining an adequate nursing staff. The number of employees engaged in the care of patients has been shown by surveys to be far below the institution's minimal needs. The staff is now over-worked in attempting to render humane treatment to the hospital inmates, the number of whom has grown from a daily average of 742 in 1934 to 824 in 1935. At Gallinger Municipal Hospital today there is a nurse-patient ratio of 1 graduate nurse to 27 and 1 student nurse to 7, more than doubling the recognized acceptable number of patients per nurse.

REPRINTS RECEIVED

The following reprints have recently been received for which due acknowledgment is made:

"Preventive Pediatrics," William Foster Burdick, M.D., Virginia Medical Monthly, July, 1935.

"Asphyxia Neonatorum," Howard F. Kane, M.D., Transactions of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, 1931, p. 277.

"Dystocia Following the Intrauterine Use of Radium," Howard F. Kane, M.D., American Journal of Obstetrics and Gynecology, February, 1935.

"Phenobarbital and Belladonna in the Treatment of Hyperemesis Gravidarum," Howard F. Kane, M.D., Virginia Medical Monthly, November, 1932.

"The Rôle of Hormones in the Cause and Treatment of Functional Uterine Bleeding," Howard F. Kane, M.D., Virginia Medical Monthly, April, 1935.

"The Treatment of Habitual Abortion," Howard F. Kane, M.D., Virginia Medical Monthly, September, 1935.

"The Carbon Dioxide Content of the Blood in the Newborn. A Preliminary Report," Howard F. Kane, M.D., and Joseph Kreiselman, M.D., American Journal of Obstetrics and Gynecology, December, 1930.

"The Use of Paraldehyde in Obtaining Obstetric Analgesia and Amnesia," Howard F. Kane, M.D., and George B. Roth, M.D., Transactions of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, 1934, p. 201.

"The Surgical Treatment of Retinitis Pigmentosa," Harry Hyland Kerr, M.D., American Journal of Surgery, May, 1935.

"Subcutaneous Kidney Ruptures: Report of Two Cases. A. Spontaneous Rupture of Hemorrhagic Cyst. B. Traumatic Rupture of Lone Kidney," R. M. LeComte, M.D., Urologic and Cutaneous Review, 1935, Vol. 39, No. 1.

"Routine Treatment of Gonorrhea in Females," Bernard Notes, M.D., American Journal of Obstetrics and Gynecology, July, 1935.

"Complete Dislocation of the Bases of Metatarsals, Without Fracture," Philip O. Pelland, M.D., Journal of Bone and Joint Surgery, January, 1935.

"Barbiturates on the Mammalian Heart," George B. Roth, M.D., Archives Internationales de Pharmacodynamie et de Thérapie, August 16, 1935.

"Pharmacologic Evidence for Cardio-regulative Nerves in the Skate (Raja Stabuliforis)," George B. Roth, M.D., Archives Internationales de Pharmacodynamie et de Thérapie, January 15, 1935.

"Sulphates of Sodium and Magnesium on Gastro-intestinal Activity," George B. Roth, M.D., and Phoebe J. Crittenden, Proceedings of the Society for Experimental Biology and Medicine, 1934, Vol. 32, p. 91.

"Value of the Intracutaneous Tuberculin Test in the Diagnosis of Ocular Tuberculosis," Jonas S. Friedenwald, M.D., and Joseph Dessoff, M.D., Bulletin, Johns Hopkins Hospital, September, 1935.

"A Device for Permanent Suprapubic Drainage Following Cystostomy," W. Calhoun Stirling, M.D., Journal of Urology, April, 1935.

"The Prostatectomist's Soliloquy, to Enuncleate or to Resect," W. Calhoun Stirling, M.D., Urologic & Cutaneous Review, September, 1935.

MEDICAL ANNALS OF THE DISTRICT OF COLUMBIA

VOLUME IV, 1935

SUBJECT INDEX

Adrenal-rest Tumor, (Stirling) 111
American Red Cross, 262
Anemias: systematic diagnosis of the, (Minor) 200
  secondary, treatment of, (Foster) 213
Anesthesia, evipal soluble; unique anesthetic for intravenous use, (Suraci) 29
Appendicitis, statistical study of acute, (Putzki) 225
  past and present, 257
Arteriovenous Fistula, congenital, (Dessoff and Angevine) 324
Arthritis:
  treatment of, general practitioner's concept of, (Yater) 4
  gonococcal, clinical features of, (Myers and Gwynn) 194
Cancer:
  larynx, basal-cell epithelioma of, with apparent recovery, (Knowlton) 46
  operations for radical cure of, (Greenough) 153
  stomach, incidence, diagnosis and treatment of, (Horsley) 185
Colostomy: See Surgery
Commission on Licensure, D. C., 62, 208
Contagious Disease Report, 90, 230
Death, cause of, (Yater and Hussey) 119
Dental Society, D. C., 26
Diabetes Mellitus, pseudo-surgical abdominal attacks in, (Lyons) 169
Ear: problems in management of deafness, (Alfaro) 70
  mycotic diseases of the, (Enlows) 217
Endometriosis, report of two cases, (Crowley) 197
Ethics: See Medicine, Industrial
Eye: tendon transplantation for paralysis of external rectus muscle, (Goodman) 11
  ocular tuberculosis, diagnosis and treatment of, (Wilmer) 191
  ocular injuries, treatment of, (Wilkinson) 124
Fistula: See Arteriovenous
Gastric Syphilis, (Biscoe) 34
Group Hospitalization, 22
Gynecology:
  dysmenorrhea, etiology and treatment of functional, (Kotz and Parker) 46-ab
  hemangioma of the ovary, (Shearer) 223
  leukorrhea, (Kane) 166
  pelvic infections, Elliott heat treatment in, (Preece) 38
Heart:
  disease, complete thyroidectomy, (Sprague) 47-ab
  massive lymphosarcomatous invasion of, (Yater and Leffler) 253
  size and shape of, (Leonard) 162
Hepatocholangiogastrostomy: report of case, (White) 204-ab
Hospitals:
  Gallinger Municipal, 183, 261, 336
  Mount Alto, 60
  Washington Eye, Ear & Throat, 229
  neglected function of, research, 328
Kober Lecture, 90
Jaundice and Ascites with Recovery, (Cavanagh) 322
Larynx: See Cancer
May Day—Child Health Day, 91
Medical Economics: See also Medical Society of the District of Columbia
  Central Admitting Bureau, 52
  Coördination of Resources for Medical Care in the D. C., (Yater and Garrett) 138
  Evils of Social Insurance, 49
  Health Insurance v. Adequate medical care for all, 226
  How the profession in Detroit handles its medical economic problems, 19
  Medical Care of the Semi-indigent, 227
  What is the Answer? 18
  Medical-Dental Service Bureau, Inc., 52, 84, 114, 141, 329
  Medical Economic Security Administration, 52, 307
  Social Security Legislation, 18, 86
  Society's Attitude Toward medical care for indigent sick, 20
Medical Education and hospitals in Greece, (Demas) 42
  postgraduate instruction, 172
Medical Schools:
  Army Medical Center, 261
  George Washington University, 61, 89, 116, 179, 287, 312, 333
  Georgetown University, 90, 228, 262, 333
  U. S. Naval, 285
Medical Society of the District of Columbia:
  Album, The Society's, 284
  Amendments to Constitution and By-laws: Compensation, Contract and Industrial Medicine Committee, 176; compensation practice, 176
  Annual Scientific Assembly, 25, 61, 86, 115, 172, 333
  Committees: personnel, 205; annual scientific assembly, 88, 333; British Medical Association entertainment, 28; censors, 205; compensation, contract and industrial medicine, 56, 148, 176, 205; executive, 148, 205, 206; group hospitalization, 23; house, 205; hospital, 206; legislative, 26, 206, 207, 335; medical defense, 180, 206; nominating, 86; program, 148, 206; public health, 148, 150, 173, 206, 335; public information, 25, 57, 62, 90, 117, 174, 206, 230, 261, 285, 309; tumor registry, 116, 206; traffic, 26; woman's auxiliary advisory, 206.
    Medical Economics: 206; central admitting bureau, 52; committee on executive secretary, 57; medical care of indigent sick, 20, 227; medical-dental service bureau, inc., 52, 84, 114.
  Davidson Lecture, 260, 285
  Delegates, American Medical Association 86, 148, 184
  Delegates, Federation of Citizens' Associations, 177
  Membership:
    changes in, 22, 86, 148, 308
    forty years of, 23
  Necrology, 27, 62, 92, 118, 312
  Officers, 148
  President, address, 146

    - message, 205
    - biography, 207
  - Programs, 24, 60, 90, 260, 285, 309, 333
  - Sections:
    - Internal Medicine, 61, 116, 260, 309, 333
    - Ophthalmology and Otolaryngology, 24, 60, 151
    - Neoplastic Diseases, 60
    - Neurology and Psychiatry, 25, 57, 116, 177, 285, 309
  - Transactions, 22, 52, 86, 148, 173, 308
  - Woman's Auxiliary, 179, 260, 334

Medical Societies:
- **General:**
  - American Academy of Ophthalmology and Otolaryngology, 309
  - American Association for Study of Neoplastic Diseases, 259
  - American College of Physicians, 151
  - American College of Surgeons, 23, 89
  - American Medical Association, 86, 91, 118, 152, 184, 286, 309
  - American Psychiatric Association, 152
  - American Urological Society, 333
  - Association of Military Surgeons, 261
  - Baltimore City, 60
  - British Medical Association, 28, 228
  - Pan American Medical Association, 24, 89
  - Southern Medical Association, 26, 286, 288, 311, 334
- **Local:**
  - Clinical Club of Washington, 116, 312
  - George Washington University, 24, 288
  - Kober, 60, 89
  - Medical Arts, 23
  - Mackall, 24, 89, 116, 262
  - Montgomery County (Md.), 229
  - Officers, 28
  - Osler, 60
  - Smith-Reed-Russell, 61, 89, 116, 179, 312, 333
  - Washington Gynecological, 288
  - Washington Heart Association, 24, 25, 285
  - Washington Ophthalmological, 229
  - Washington Society of Pathologists, 258, 310, 329
  - Women's Medical, 285

Medicine:
- emblems of, (Bennett) 305
- industrial, and medical ethics, (Moore) 77
- internal, fundamentals of, (Koppanyi) 127
- internal, fundamentals of, (Schneider) 277, 297, 315
- pages of Spanish, (Garrison) 73

Medicolegal, 180
- the doctor and his business relations, (Fenning) 133

Meningitis:
- in children, (Lindsay, Rice and Selinger) 231
- chorio-, in monkeys, pathologic histology of lymphocytic, (Lillie) 311-ab
- lymphocytic, of man, newly discovered virus, (Armstrong) 310-ab

Meningococcemia, (Conklin) 313

Nervous and Mental Diseases: See also Medicine
- American Board of Psychiatry and Neurology, (Freeman) 58-ab
- dementia praecox, complement-fixation reaction in, (Shippen) 289
- diseases of nervous system, (Schneider) 277, 297, 315
- gastro-intestinal disorders in the psychoses, (Simon) 106
- neurosyphilis, malaria treatment of, (Freeman) 1
- poliomyelitis, etiology, symptoms and diagnosis of, (Wall) 326
- psychiatric dispensary, (Cohen) 158, 179
- relation of frontal lobes to visceral function, (Watts) 99
- superior pulmonary sulcus tumor, (Schneider) 58-ab
- thorotrast ventriculography, (Schoenfeld, Freeman and Moore) 178-ab
- transvestitism in a man, (Kiessling) 59-ab

Obstetrics:
- polyneuritis of pregnancy, (Dodek) 177-ab

Osteomyelitis, multiple acute, with pyemia, (Cahill) 171-ab

Pharmacopoeia, United States, 334

Pneumonia:
- lobar, rapid diagnosis and serum treatment, (Dowling) 66
- in the District of Columbia, (Dowling) 293

Pancreatosis, (Dardinski) 291

Public Health Statistics, 90
- May Day, 91
- Tuberculosis, 91

Reprints Received, 208, 230, 336

Skin Diseases: dermatological conditions encountered by otolaryngologist and ophthalmologist, (Campbell) 14

Surgery:
- aortic embolectomy, (Kerr) 249
- colostomy preliminary to uretero-enteric anastomosis, (Morris) 251
- major importance of minor infections, (Caulfield) 263

Syncopes: mechanism, interpretation and treatment, (Weiss) 204-ab

Therapeutics, rational, applied pharmacodynamics, (Koppanyi) 127

Tuberculosis: See also Eye, Surgery
- artificial pneumothorax, (Cake) 209
- anti-, campaign, 288, 335
- modern weapons aid physicians in fight on, 91
- phrenicotomy: analysis of results in 36 cases, (Horgan and Peabody) 274

Tumors, bone, (Geschickter) 330-ab
- roentgenologic features of some types of, (Moore) 331-ab

Urinary Tract:
- empyema of ureteral stump, (Le Comte) 13
- stone in, knowledge of etiology, (Fowler) 93
- urinary lithiasis, medical management of, (Higgins) 63

Varicose Ulcer, (Horwitz) 243

Venereal Diseases:
- lymphogranuloma inguinale: cause of rectal stricture, (Marbury) 268

AUTHOR INDEX

(a) Indicates abstracts. (d) Indicates discussion. No prefix indicates article published in full in Medical Annals of the District of Columbia

Alfaro, V. R., 70
Angevine, W. K., 324
Armstrong, C., a-310
Bennett, A. B., 146, 305
Biscoe, F. L., 34
Cahill, J. A., Jr., a-171
Cake, C. P., 209
Campbell, C. B., 14
Caulfield, P. A., 263
Cavanagh, J. R., 322
Cohen, R. S., d-59, 158, d-178
Conklin, C. B., 313
Crowley, J. F., 197
Dardinski, V. J., 291
Demas, C. J., 42
Dessoff, S., 324
Dodek, S., a-177
Dowling, H. F., 66, 293
Enlows, E. M. A., 217
Fenning, F. A., 133
Foster, S. O., 213
Fowler, H A., 93
Freeman, W., 1, a-58, d-58, d-60, a-178, d-178
Garrett, R., 138
Garrison, F. H., 73
Geschickter, C. F., a-330
Gilbert, J. L., d-60
Goodman, E. L., 11
Greenough, R. B., 153
Gwynn, H. B., 194
Higgins, C. C., 63
Horgan, E., 274
Horsley, J. S., 185
Horwitz, A., 243
Hussey, H. H., 119
Kane, H. F., 166
Kerr, H. H., 249
Kiessling, A. H., a-59
Knowlton, D. S., 46
Koppanyi, T., 127
Kotz, J., a-46
Lamb, R. S., d-59, d-60
Le Comte, R. M., 13
Leffler, H. H., 253
Leonard, B. W., 162
Lillie, R. D., a-311
Lindsay, J. W., 231
Litvin, P., d-178
Lyons, J. H., 169
Marbury, W. B., 268
Minor, J., 200
Moore, C., a-178, a-331
Moore, W. C., 77
Morris, W. R., 251
Myers, W. K., 194
O'Malley, M., d-59
Otell, L. S., d-58
Parker, E., a-46
Peabody, J. W., 274
Preece, A. A., 38
Putzki, P. S., 225
Rice, E. C., 231
Schneider, A., a-58, d-59, d-178, 277, 297, 315
Schoenfeld, H. H., d-58, a-178
Selinger, M. A., 231
Shapiro, H. D., d-178, d-179
Shearer, J. P., 223
Shippen, L. P., 289
Simon, A., d-60, 106, d-178
Sprague, H. B., a-47
Stirling, W. C., 111
Suraci, X. C., 29
Wall, J. S., a-326
Watts, J. W., 99
Weiss, S., a-204
White, C. S., a-204
Wilkinson, O., 124
Wilmer, W. H., 191
Yater, W. M., 4, 119, 138, 253

PERSONAL NAMES

Alfaro, V. R., 333
Atkinson, W., 335
Baker, W. P., 24
Baier, G. K., 118
Ballinger, W. M., 23, 25
Belt, N., 335
Bennett, A. B., 146
Bernton, H. S., 90, 177
Bird, J. W., 229
Bloedorn, W. A., 183
Bloodgood, J. C., 260
Bogan, J. B., 23, 311
Brennan, J. F., 116
Brilmyer, G. J., 228, 262
Bryan, J. H., 62
Burbank, C., 23
Cafritz, E. A., 309
Cahill, J. A., Jr., 333, 335
Cajigas, T., 23, 89, 116
Campbell, C. B., 177
Caulfield, P. A., 89
Chase, W. W., 23, 335
Chipman, C. N., 286
Christie, A. C., 23, 57, 228, 286
Clark, W. E., 309
Coe, F. O., 60, 311
Cohen, R. S., 25
Collins, J. L., 152
Conklin, C. B., 115, 206, 312
Connerty, H. V., 262
Constantinople, P. S., 335
Costenbader, F. D., 23, 116, 151
Coupal, J. F., 27
Cox, O. C., 309
Culver, C. W., 23
Cumming, H. S., 312
Cumming, J. G., 152
Cummings, E. J., 151
Cutting, R. A., 262
Dardinski, V. J., 228, 262
Dart, R. O., 229, 259
Davidson, E. Y., 260
Davies, H. F., 309
Davis, W. T., 26, 183, 208, 311, 312
Donnally, H. H., 152
Edmonds, F. H., 27
Eichenlaub, F. J., 152
Elward, J. F., 28, 152
Esler, J. W., 24
Fadeley, J. M., 60
Fields, R. J., 60, 89
Fowler, H. A., 28, 228
Freeman, W., 61, 116, 152, 208, 286
Gager, L. T., 311
Garrison, F. H., 118
Geier, F. A. J., 116
Gill, W. T., Jr., 23
Greear, J. N., Jr., 229
Greene, L. S., 229
Hadley, E. E., 60, 285
Hand, F. M., 89
Harding, H. T., 23
Herbst, W. P., Jr., 150
Hilton, S. L., 287
Hooe, R. A., 23, 26
Horgan, E., 90
Hough, W. H., 148
Howard, L. O., 312
Hyde, L. W., 23
Jacobs, J. B., 311
Kearny, R. A., 23
Knowlton, D. S., 57
Lattman, I., 60
Leadbetter, G. W., 86
Leake, J. P., 152
LeComte, R. M., 23, 152, 206, 311
Lindsay, J. W., 117, 259
Lloyd, B. J., 311
Lyon, J. A., 24, 90
Macatee, H. C., 86, 148, 184
Martel, L. A., 23
McCarthy, L., 311
McKinley, E. B., 311
McLean, M. M., 24, 335
McLendon, P. A., 26, 173, 229
McNitt, R., 23
Mead, S. V., 286
Meloy, W. C., 23
Miller, B., 24
Minor, J., 60, 174
Moore, C., 89, 152, 229, 286
Morgan, W. G., 26, 184, 228, 286
Morse, E. E., 23
Neuman, L., 335
Otell, L. S., 90
Pagan, A. E., 23
Pelland, P. O., 23
Pendexter, R. S., 24
Phillips, W. F. R., 92
Portmann, G., 25, 26
Preece, A. A., 23
Purse, G. G., 285
Ramsey, H. P., 57, 176
Ransom, C. A., 308
Reichelderfer, L. H., 180
Reuter, F. A., 23
Reynolds, C. R., 208
Rice, E. C., 60
Riddick, A. L., 148
Robey, W. I., 180
Rosenthal, S. M., 152
Ruffin, S., 23, 24, 180, 205, 207
Ruhland, G. C., 61, 260, 285, 286
Sacks, S. M., 118
Sager, W. W., 24
Scala, N. P., 152, 335
Schneider, A., 116
Schoenfeld, H. H., 152, 229, 286
Schreiber, F. C., 60, 311
Seckinger, D. L., 287, 309
Sexton, R. L., 309
Shands, A. R., 23
Shapiro, H. D., 173
Sheppard, E., 229
Shute, D. K., 312
Simon, A., 25, 309
Smith, E. K., 60
Smith, H. L., 60
Speidel, F. G., 311
Stokes, W. R., 309
Strine, H. H., 116
Stuart, D. D. V., Jr., 286
Taggart, S. R., 24
Teichmann, W. O., 152
Titus, E. W., 23
Vann, H. K., 89
Verbrycke, J. R., Jr., 23
Wall, J. S., 152
Watkins, S. E., 23
Weller, G. L., Jr., 90, 309
Wells, R. L., 116
Wells, W. A., 60
White, C. S., 152
White, W. A., 152
Whitmore, E. R., 259, 311
Wilkinson, O., 60, 229
Wilmer, W. H., 28, 60
Wissler, J. E., 311
Yater, W. M., 24, 57, 115, 184, 229, 259
Zinkhan, A. M., 151

41C 1263